

**The Elements of an Effective Response to Intervention Program and Its Impact on  
Middle School Reading Comprehension Scores**

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Submitted to the Graduate Department and Faculty of the School of Education of  
Baker University in partial fulfillment of the requirements for the degree of  
Doctor of Education in Educational Leadership

  
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Date Defended: August 2, 2018

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## **Abstract**

The purpose of this study was to determine the effectiveness of Tier 3 (T3) interventions at the middle school level by analyzing the extent that there was a difference in the level of Missouri Assessment Program (MAP) proficiency and the amount of student growth on the STAR Reading Assessment when students were enrolled in a research-based T3 program compared to a non-research-based T3 program. Students who were enrolled in seventh grade and participated in the T3 program in a Kansas City, MO school district during the 2015-2016 and 2016-2017 school years served as the participants in this study. Four research questions were developed to meet the purpose of the study and an independent samples *t* test was conducted to address each research question. The results of the study identify there was not a statistically significant difference between the research-based T3 program (READ 180) and the non-research-based T3 program (Reading Essentials). A marginally significant difference was noted between the two T3 programs when the STAR Reading Assessment growth from fall to spring was compared.

It was recommended that District X consider expanding research into their Reading Essentials program and identifying which components of the program proved to be most beneficial. It was also recommended that District X continue to collect data on their T3 programs over multiple years to gain a better analysis of the programs' effectiveness over time. Future studies could be conducted that include qualitative components like surveys of stakeholders utilizing the T3 programs. This type of feedback could provide the district with insight as to what is working for those involved in the programs and what is not working for those involved in the programs.

## **Dedication**

I would like to dedicate this dissertation to my sons, Jackson and Mason. You are the two most important people in my life and my motivation for completing this degree. I am so proud of the two of you and love you both with all my heart. I hope that seeing me complete this degree will help you to know you can also do anything you set your mind too. Remember anything in life worth having is worth working for. You will always be my little Edwards and my best friends.

## **Acknowledgments**

There are many people I would like to acknowledge for their support throughout this process. First, I would like to thank my advisor, Dr. Dennis King, and my committee members, Dr. Susan Rogers, and Dr. Dale Longenecker. Dale, in addition to serving on my committee, I also appreciate the mentorship and friendship you have provided me over the last decade. I would also like to thank my research analyst, Dr. Peg Waterman. I appreciate your feedback and assistance throughout this process.

Next, I would like to thank my family, Elisha, Jackson, and Mason. I would not have been able to complete this process without your support and patience. You are the reason I do what I do each and every day. I am so grateful to have such a loving and supportive family.

To Dr. Vanessa Zamzow and Kelly Seymour, thank you for your willingness to take time out of your busy days to help me with this process. Your assistance was priceless. Vanessa, I am thankful for the opportunity to go through our coursework together. I learned a lot from our conversations challenging each other's thinking and trying to figure out how we could be difference makers in the lives of students. Thank you both for your friendship and support.

To Dr. Mike Kimbrel and Dr. Jeanette Cowherd, thank you for serving as exceptional leaders and providing me with mentorship and support throughout my time as a building-level administrator.

## Table of Contents

Abstract .....	ii
Dedication .....	iii
Acknowledgements .....	iv
Table of Contents .....	v
List of Tables .....	viii
Chapter 1: Introduction .....	1
Background .....	4
Statement of the Problem .....	7
Purpose of the Study .....	8
Significance of the Study .....	8
Delimitations .....	9
Assumptions .....	9
Research Questions .....	9
Definition of Terms .....	11
Organization of the Study .....	12
Chapter 2: Review of the Literature .....	13
Reauthorization of IDEA and Origin of RTI .....	13
School Reform .....	19
Components of Reading .....	23
Research-Based Tier 3 Interventions .....	27
Effective Practice in RTI .....	32
Summary .....	39

Chapter 3: Methods.....	40
Research Design.....	40
Selection of Participants .....	41
Measurement.....	41
Data Collection Procedures.....	49
Data Analysis and Hypothesis Testing .....	50
Limitations .....	52
Summary.....	52
Chapter 4: Results.....	53
Descriptive Statistics.....	53
Hypothesis Testing.....	55
Summary.....	59
Chapter 5: Interpretation and Recommendations .....	60
Study Summary.....	60
Overview of the Problem.....	60
Purpose Statement and Research Questions .....	60
Review of the Methodology.....	61
Major Findings.....	61
Findings Related to the Literature.....	62
Conclusions.....	64
Implications for Action .....	64
Recommendations for Future Research .....	65
Concluding Remarks.....	66

References.....67

Appendices.....81

    Appendix A. Baker University IRB Proposal for Research Approval Letter.....82

    Appendix B. District X Research Permission Approval Letter .....84

## **List of Tables**

Table 1. Reliability of the MAP ELA Assessment Test .....	46
Table 2. STAR Enterprise: Reading – Coefficients .....	48
Table 3. STAR Enterprise: Reading – Reliability .....	49
Table 4. MAP ELA Proficiency by Level .....	53
Table 5. Winter STAR Reading Assessment Proficiency by Level .....	54
Table 6. Spring STAR Reading Assessment Proficiency by Level.....	55
Table 7. MAP ELA Scale Scores.....	56
Table 8. STAR Reading Assessment Growth from Fall to Winter.....	57
Table 9. STAR Reading Assessment Growth from Winter to Spring .....	58
Table 10. STAR Reading Assessment Growth from Fall to Spring .....	59



## **Chapter 1**

### **Introduction**

School districts across the nation are working to increase their graduation rates and produce students who are college and career ready. To meet this goal, students must enter high school with the necessary pre-requisite skills to be successful, which includes proficiency in reading comprehension. Only 37% of high school seniors are prepared for college-level reading (National Assessment of Educational Progress [NAEP], 2015). Below-level reading interferes with the students' ability to learn the material in core content areas. Based on the need for remedial instruction, schools are implementing programs and practices to help students learn the skills they are missing. "When a student... needs intensive intervention on a particular topic or skill, that is the time to put a validated practice into action" (Smith & Tyler, 2010, p. 25).

One strategy schools and districts are using to provide intensive intervention is through Response to Intervention (RTI), a tier-based instructional practice based on the idea that "schools should provide targeted and systematic interventions to all students as soon as they demonstrate the need" (Buffum, Mattos, & Weber, 2010, p. 10). While Buffum et al. (2010) addressed the spirit of the practice, the application of RTI was defined by Smith and Okolo (2010) as having four primary components:

(a) evidence-based classroom instruction, (b) student assessment with a classroom focus, (c) universal screening of academics and behavior, and (d) continuous progress monitoring of students ... the RTI framework ... use of evidence-based, clearly specified interventions that seek to enhance instruction and subsequent student learning. A key premise of RTI is that effective practices will improve

the instruction for all students ... RTI emphasizes the use of evidence-based practices to offer a standard-protocol approach to teaching and learning that is deliberate and explicit. (p. 258)

The National Center on Response to Intervention (NCRTI, 2010) explained RTI as a practice which combines assessment and intervention with a tiered prevention system to increase student achievement both academically and behaviorally. A specific systematic process is used when schools utilize RTI. Data is used to identify academically at-risk students, evidence-based interventions are provided and adjusted based on student need, and students can then be identified as needing additional support or testing for special services (NCRTI, 2010). What these definitions and outlines share in common is the multi-tiered intervention approach and early identification of struggling learners. These processes are needed as literacy at the secondary education level continues to be an issue of concern nationwide based on the data that has been collected.

In 2009, Rampey, Dion, and Donahue noted approximately two-thirds of eighth- and twelfth-grade students read at less than the 'proficient' level on the NAEP. On the NAEP in 2015, 66% of all eighth-grade students, 85% of black students, and 79% of Hispanic students failed to perform proficiently in reading (Johns Hopkins University, 2017). The durability of these consistently below proficient reading levels speaks to a crisis in literacy in middle schools. Of even greater concern to academics are the implications these shortcomings have for the students who will graduate high school and become members of the 21<sup>st</sup>-century workforce. The data raises concerns "about the ability of the nation's youth to participate productively in a workforce that was facing an increasingly complex world economy" (Jacobs, 2008, p. 8).

Globalization has brought forth a new world economy in which strong critical thinking skills and the ability to read and write fluently directly impact a student's future ability to participate successfully in the workforce. Thorndike (1974) noted that by the age of 13 "reading is no longer—to any substantial degree—a decoding problem... It is a thinking problem" (p. 144). Reading with automaticity and fluency are the first steps in the progression to critical thinking (Thorndike, 1974). Therefore, addressing literacy skills swiftly and effectively is critical.

The International Reading Association (IRA) created a position statement on adolescent literacy in 1999. As a result of the negligible responsiveness regarding the burgeoning adolescent literacy crisis, the IRA remarked:

No one gives adolescent literacy much press. It is certainly not a hot topic in educational policy or a priority in schools. In the United States, most Title I budgets are allocated for early intervention — little [is] left over for the struggling adolescent reader. Even if all children [do] learn to read by Grade 3, the literacy needs of the adolescent reader [are] far different from those of primary-grade children. (Blair-Larsen & Williams, 1999, p. 1)

Since 2009, The Common Core State Standards has served as the foundation for the proficiency standards in literacy (Common Core State Standards Initiative, 2018).

Before addressing the literacy problem, we must first define literacy. The National Council of Teachers of English (NCTE) (2006) defined adolescent literacy as

more than reading and writing. It involves purposeful social and cognitive processes. It helps individuals discover ideas and make meaning. It enables functions such as analysis, synthesis, organization, and evaluation. It fosters the

expression of ideas and opinions and extends to understanding how texts are created and how meanings are conveyed by various media, brought together in productive ways... This complex view of literacy builds upon but extends beyond definitions of literacy that focus on features like phonemic awareness and word recognition. (p. 5)

In response to this need, Allington (2011) suggested a more customized approach to instruction is imperative to student success, noting, “one reason that struggling readers receive fewer high-quality reading lessons is our fixation on one-size-fits-all core reading programs” (p. 42). By individualizing interventions using individualized instruction, students receiving support services through an RTI program should demonstrate improvement.

### **Background**

An effective intervention that teaches students to use cognitive tactics to become stronger readers is needed at the middle school level. Jacobs (2008) elaborated upon this sentiment by noting, “the demands of reading and the skills required at each stage clarifies the distinctions between earlier reading and the kind of reading required of adolescents” (p. 12). Struggling readers need to be taught specific strategies they can consciously employ to overcome reading obstacles. Fuchs and Deshler (2007) discussed the relevance and need for RTI for middle school and high school students struggling with reading. After implementing an RTI program at the elementary level, District X then incorporated an RTI program for struggling readers at the middle and high school level.

The setting for this study was a suburban school district located in western Missouri. District X utilized a three-tiered approach to its RTI program. According to District X's *RTI Process Manual* (2016b), Tier 1 (T1) is instruction provided to all students in the classroom, Tier 2 (T2) is small group instruction provided to students needing support in a targeted area, and Tier 3 (T3) is intensive intervention provided to students who were significantly below standards.

District X is a public-school district providing comprehensive educational services for students in pre-K through grade 12. The district consisted of a total enrollment of 11,287 students for the 2016-2017 school year (District X, 2017). The district had 10 elementary schools, three middle schools, two high schools, a day treatment school, and an early childhood center. Of the district's total enrollment during the 2016-2017, 69.5% of the population was white, 11.7% was African American, 9.3% was Hispanic, 4.5% was multi-racial, 3.2% was Asian, 1.4% was Pacific Islander, and 0.4% was Native American. The percentage of District X's student population who qualified for free or reduced lunch was 27.9% (District X, 2017).

According to District X's Demographic Profile, during the 2015-2016 school year, 411 seventh graders attended ABC Middle School (District X, 2016a). During the 2016-2017 school year, 394 seventh graders attended ABC Middle School (District X, 2017). The seventh-grade students at one middle school were the focus of this study because of the T3 interventions that were utilized by staff members through the building's RTI program. Two different T3 interventions were used in the middle school's RTI program over the course of two years.

The T3 intervention implemented during the 2015-2016 school year was the READ 180 program. Students were placed into this intervention group based on their STAR Reading score from the fall of their seventh-grade year. Students whose scores were below 610 were identified as T3 students. During the 2015-2016 school year, 36 seventh-grade students were placed in the READ 180 program.

READ 180 is an adaptive computer software program designed to support students by developing their phonemic awareness, decoding skills, and familiarity with content-area text (Brown, 2006). Hasselbring led a group from Vanderbilt University on the development of the READ 180 program in 1985 by identifying the connection between anchored reading instruction with the use of technology and situated cognition (Moore, Reith, & Ebeling, 1993). The prototype was developed by identifying the main factors that affected struggling readers and addressing those factors using situated cognition or authentic learning (Moore et al., 1993). According to Scholastic (2006), strategies and skills in reading comprehension are systematically taught as students participate in small group instruction and complete computer activities. The National Reading Panel's (NRP) five elements of reading (phonemic awareness, phonics, fluency, vocabulary, and comprehension) are rooted in the READ 180 program. When fully implemented, the program includes several components with a framework that is built upon a 90-minute instructional model with small rotations incorporating 20 minutes of whole-class direct instruction, 60 minutes of small group rotation periods, and 10 minutes of wrap-up time for the whole class (Brown, 2006).

The T3 intervention implemented during the 2016-2017 school year was the district-created program titled Reading Essentials. Students were placed into this

intervention group based on their STAR Reading score from the fall of their seventh-grade year. Students whose scores were below 610 were identified as T3 students. There were 41 seventh-grade students placed in the Reading Essentials program during the 2016-2017 school year. The Reading Essentials program utilized the Fountas and Pinnell guided reading resources, and reading instruction was provided to students by a certified reading teacher. The three components of the Reading Essentials program consisted of intervention, diagnostic, and team building (District X, 2016c).

### **Statement of the Problem**

RTI at the middle school level must effectively improve students' reading skills for students to become on grade level readers. The problem is students are lacking reading skills and school districts are struggling to implement effective reading interventions to close the achievement gap. Faggella-Luby and Wardwell (2011) remarked that "regardless of the specific RTI model implemented, considerable questions remain about the validity of applying RTI beyond elementary school" (p. 36).

It is common knowledge among academics that "the empirical foundations of Rtl are rooted in early-literacy research and the elementary school context, causing practical challenges when the model is applied to middle school settings" (Faggella-Luby & Wardwell, 2011, p. 35). Therefore, schools must attend to the need for effective RTI at the middle school level which bridges elementary school reading basics into the requirements of high school reading across the disciplines. The problem is the effectiveness of RTI interventions improving reading comprehension with T3 students at the middle school level is not known.

**Purpose of the Study**

The purpose of this study was to determine the comparative effectiveness of T3 interventions at the middle school level by analyzing the extent that there was a difference in the level of Missouri Assessment Program (MAP) English Language Arts (ELA) proficiency and the amount of student growth on the STAR Reading Assessment when students were enrolled in a research-based T3 program (READ 180) compared to a non-research based T3 program (Reading Essentials). Two dependent variables were specified for this research. The first dependent variable was the MAP ELA scores for seventh-grade students during the 2015-2016 school year and seventh-grade students during the 2016-2017 school year. The second dependent variable was the change in STAR Reading scale scores from fall to winter, winter to spring, and fall to spring for seventh-grade students during the 2015-2016 school year and seventh-grade students during the 2016-2017 school year.

**Significance of the Study**

The results of this study could contribute to the literature about effective reading interventions at the middle school level. Prewett, Deshler, Allen, Alexander, and Stern (2012) noted, “Secondary schools across the nation are continuing to implement RTI as a means of closing the basic skills achievement gap” (p. 136). In 2016, District X planned to continue to develop its secondary RTI program and strengthen its T3 intervention practices over the next few years (District X, 2016b). The findings in this study could provide District X with useful information regarding its current T3 practices and T3 student achievement in the area of reading comprehension. In addition, other districts looking to implement or improve their T3 reading programs could benefit from the



results found in this study as they decide the most effective way to support struggling readers and improve their skills in reading comprehension.

### **Delimitations**

This study was limited to the T3 seventh-grade students at ABC Middle School during the 2015-2016 and 2016-2017 school years in School District X. The study was limited to instruction and intervention during reading class and did not expand into other content areas. The study was also limited to the use of MAP ELA data and STAR Reading data as the measurements of student growth and learning.

### **Assumptions**

For this study, the following were assumed to be true:

1. READ 180 was implemented with fidelity during the 2015-2016 school year.
2. District X's Reading Essentials program was implemented with fidelity during the 2016-2017 school year.
3. The STAR Reading Assessment was proctored correctly.
4. The MAP ELA assessment was proctored correctly.
5. Students put forth their best effort on all assignments and assessments.

### **Research Questions**

The focus of the study was to determine to what extent there was a difference in the level of MAP proficiency and student growth in reading comprehension on the STAR assessment when students were enrolled in a research-based T3 program compared to a non-research-based program. The following research questions were addressed in this study:

**RQ1.** To what extent is there a difference in the level of MAP ELA proficiency between seventh-grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh-grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year?

**RQ2.** To what extent is there a difference in students' growth, as measured by the change in the fall to winter STAR Reading scale score, between seventh-grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh-grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year?

**RQ3.** To what extent is there a difference in students' growth, as measured by the change in the winter to spring STAR Reading scale score, between seventh grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year?

**RQ4.** To what extent is there a difference in students' growth, as measured by the change in the fall to spring STAR Reading scale score, between seventh grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year?

## **Definition of Terms**

Terms used throughout the study are provided and defined in this section.

According to Creswell (2009), definitions of terms should be provided when “individuals outside the field of study may not understand and that go beyond common language” (p. 39).

**Cognitive strategy instruction.** Allington (2009) stated cognitive strategy instruction is the ability to monitor what you are doing while you are doing it.

**Explicit instruction.** According to Archer and Hughes (2011), when explicit instruction is utilized, the rationale for learning is provided to students throughout the learning process, where supported practice with feedback is given until independent mastery has been achieved.

**READ 180.** What Works Clearinghouse (WWC) (2016) indicated “READ 180 is a reading program designed for struggling readers who are reading 2 or more years below grade level. It provides blended learning instruction (i.e., combining digital media with traditional classroom instruction), student assessment, and teacher professional development” (p. 1).

**Reading Essentials (RE).** This secondary reading program identifies struggling readers based on their STAR Lexile score and provides interventions through a pull-out Essentials course. The Essentials course provides students who are two years or more behind their reading grade level with intensive reading intervention (District X, 2016b).

**STAR Reading.** This computer assessment for grades K-12 offers state-specific insights and resources to guide students on reading proficiency (Renaissance, 2012).

**Tier 1 (T1).** According to Allington (2009), all students receive T1 universal classroom interventions, and it is preventative and proactive. This step usually will be enough for 75-80% of students.

**Tier 2 (T2).** Allington (2009) stated 10-15% of students receive targeted small group instruction for further assistance beyond the classroom lesson and assistance provided in T1.

**Tier 3 (T3).** Allington (2009) stated 5-10% of students receive the most intensive level of intervention that builds on T1 and T2 instruction and typically consists of one-on-one individualized tutorial intervention.

### **Organization of the Study**

This study is organized into five chapters. Chapter 1 included the background of the study, the statement of the problem, the purpose of the study, the significance of the study, delimitations, assumptions, research questions, the definition of terms, and the organization of the study. Chapter 2 includes a review of literature related to the reauthorization of IDEA and origin of RTI, school reform, the components of reading, research-based T3 interventions, and effective practice in RTI. Chapter 3 contains the methodology used in this study. The results of the data analysis are reported in Chapter 4. Finally, presented in Chapter 5 is an overview of the study, findings related to the literature, and the conclusions.

## **Chapter 2**

### **Review of the Literature**

A review of the literature is included in this chapter. This review includes a historical review of the reauthorization of IDEA and development of RTI, school reform, components of reading, research-based T3 interventions, and the analysis of RTI effective practices. Previous research regarding the research-based RTI program READ 180 is covered.

#### **Reauthorization of IDEA and Origin of RTI**

In 1973, when Congress passed the Rehabilitation Act, Section 504 established basic civil rights for people with disabilities. Section 504 was defined as “supports to compensate for disabilities, adjustments to assignments or tests or accommodations” (Smith & Tyler, 2010, p. 14). With the new law came new educational practices meant to provide for students with special needs. This prior authorization stated that no individual be excluded or denied the benefits of any program receiving federal assistance based on his or her disability (Office of the Assistant Secretary for Administration and Management, 1973).

Due to the “widespread patterns of exclusion, denial of services, and discrimination” (Smith & Tyler, 2010) that were occurring in the regular education classroom, Section 504 became the foundation for The Individuals with Disabilities Education Act (IDEA) of 1975. This act was also known as the Education for All Handicapped Children Act (EHA) or Public Law 94-142. Its primary purpose was to guarantee that every child with a disability receives a free, appropriate public education. IDEA continued to evolve as President Reagan signed the Handicapped Children’s

Protection Act in 1986. President Clinton reauthorized IDEA in 1997 with several key amendments that emphasized providing all students with access to the same curriculum; and, finally, in 2004, Congress amended IDEA by calling for early intervention for students, greater accountability, and improved educational outcomes (University of Kansas, 2018).

In 2004, President George W. Bush signed into law P.L. 108-446, the Individuals with Disabilities Education Improvement Act of 2004 (IDEIA), remarking at the signing ceremony, “America’s schools educate over 6 million children with disabilities ... with little expectation that they could make significant progress or succeed like their fellow classmates. Children with disabilities deserve high hopes, high expectations, and extra help” (Bush, 2004). This pronouncement was the beginning of data-based practices in the United States and was embraced by academics who noted “data-based practices (interventions) or teaching tactics have been proven effective through systematic and rigorous research” (Smith & Tyler, 2010, p. 14). Trohanis (2008) concurred noting, “These amendments reauthorized IDEIA and updated a rigorous national agenda to increase services and improve results for children and youth with special needs” (p. 141).

Significantly, “the substantial growth of the special-education population has been most pronounced with respect to students diagnosed with ‘specific learning disabilities’ (SLDs)” (Kavale, 2009). Over time, students with SLDs remained a large representation of the special-education population. “Students with specific learning disabilities... remain the largest group of those covered under the IDEA... In 2005-06, they made up 45 percent of all students in the special education child-count data. By 2014-15... 39 percent...” (Samuels, 2016).

Consistently a large number of children in this special subset of exceptional learners necessitates a systematic approach. With respect to the law and the needs of the child, educators face the challenge of addressing such a significant number of the children with specific learning disabilities. “The most widely implemented intervention method to emerge since the 2004 amendments is ‘response to intervention’ (RTI)” (Steinberg, 2013, p. 395). Graves, Duesbery, Pyle, Brandon, and McIntosh (2011) agreed noting:

Stemming from the plethora of evidence on the effectiveness of early universal screening, intensive instruction and progress monitoring for improving reading trajectories, the recent authorization of the Individuals with Disabilities Act (IDEA, 2006) provides local education agencies with the authority to discontinue the use of the ability-achievement discrepancy method and instead use response to intervention as part of the evaluation procedure for identify students with specific learning disabilities. (p. 74)

RTI has become the contemporary approach to addressing struggling students, most prominently, students who are struggling readers. RTI can be described as a framework that allows school staff to make data-driven instructional decisions based on students’ academic and behavioral needs (Canter, Klotz, & Cowan, 2008). Indeed, Mitchell, Deshler, and Ben-hania-Lenz (2012) remarked, “RTI functions as a multi-level prevention system to maximize student achievement and to reduce behavior problems” (p. 53). Steinberg (2013) noted:

Through graduated intervention levels and progress monitoring within general education, RTI seeks to properly distinguish students with learning disabilities

from those who are merely underachievers in need of more intensive instruction. RTI not only attempts to resolve the over-inclusion of students in special education, but also supports the most recent effort by the education policy reform movement to reconfigure the public-education system. (pp. 394-395)

At its essence, RTI is “typically defined as a three-tiered approach ... [with] literacy development by general education teachers based on evidence-based approaches defines Tier 1” (Graves, Duesbery, et al., 2011, p. 642). On a more practical level, “RTI provides a logic model that links the process of collecting sound evidence with implementing developmentally sensitive instruction and interventions. RTI stems from researcher concerns... of students at risk of being identified or classified as learning or reading disabled” (O’Reilly, Sabatini, Bruce, & Pillarisetti, 2012, p. 165).

The first tier of the model represents the research-based core instruction that all students receive in the general classroom setting. It is intended for all students. “Tier 1 includes differentiated instruction (e.g., flexible grouping) and classroom accommodations (e.g., study aids) to enhance children’s understanding of core instruction. Universal screening at T1 consists of a quarterly assessment of key academic and behavioral targets or skills” (McNamara & Hunley, 2010, pp. 5-6). Through quarterly assessment procedures, teachers can identify which students need more intense instruction. The quarterly assessment procedures are worth noting because it helps determine who receives T2 interventions. Bianco (2010) noted, “If Tier 1 in the general education classroom is not producing sufficient enough success, students are moved to subsequently higher tiers until progress is achieved at a rate sufficient enough to show progress toward a predetermined goal” (p. 3). This stratification of learners is designed



not to assess achievement but, rather, learning need. Particularly, in literacy, teachers, interventionists, and specialized educators can focus on the component of reading the student is needing the most.

Students then moving to T2 support receive “additional individual instruction, small group instruction, and/or technology-assisted instruction to support and reinforce skills taught by the classroom teacher” (McCook, 2006, p. 30). T2 interventions are generally of moderate intensity, giving the struggling learner even more personalized resources than the entire class receives at T1, but not “the highly specialized resources and strategies that are delivered at Tier 3” (McNamara & Hunley, 2010, p. 6). The T2 intervention uses the foundation of the general classroom instruction to specialize even further the instruction and learning “using strategies that directly target a skill deficit” (Buffum et al., 2010, p. 15). The goal of tier 2 is not to increase the student’s grade or performance but to bridge the learning gap and fill the metaphorical holes of the individual learner. For some students, this approach has proven to be effective.

For T3 students, the intervention continues with a stronger focus and greater intensity. Typically based upon the universal skills of reading and math, “Within Tier Three, students receive smaller group support (as small as 1:2) most days of the week while continuing previous tiered supports” (Abou-Rjaily & Stoddard, 2017, p. 87). Moreover, this increased intensity and almost entirely individual instructional time, further help identify students who may need special services. At Tier 3, “if a student does not improve after increasingly intense high-quality interventions that are implemented with fidelity, he or she may be referred for special education services” (Sharp, Sanders, Noltemeyer, Hoffman, & Boone, 2016, p. 152). This final tier includes

the implementation of evidence-based practices and instructional methodologies, which maintain “teaching and learning that is deliberate and explicit” (Smith & Okolo, 2010, p. 258). It also aligns “high quality research-based intervention to student’s educational and behavioral needs” (Bianco, 2010 p. 4).

In summary, RTI is the current standard practice that allows students to receive additional help based on their learning needs. It is comprised of a multi-tiered support model, which includes early and increasingly intensive intervention, progress monitoring, and instructional decision making. The goals of this system are to close the gap in learning that some struggling students experience, provide additional remediation and instruction for students who need it most, and gain an understanding of students who need support to best identify those needing further specialized services. At its best, RTI is intended to “maximize student achievement and to reduce behavior problems. With RTI, schools identify students at risk for poor learning outcomes, monitor student progress, provide evidence-based interventions and adjust the intensity and nature of those interventions depending on a student’s responsiveness...” (NCRTI, 2010, p. 2). Research has indicated with RTI that there is a “positive association between implementation fidelity and student outcomes” (Sharp et al., 2016, p. 153).

## School Reform

In 1965, President Lyndon B. Johnson signed into law the Elementary and Secondary Education Act (ESEA). The intent behind this law was to call national attention to Johnson's *war on poverty* and provide educational funding designed to provide equal access to quality education (Social Welfare History Project, 2016). This unprecedented law brought to the forefront of America's educational consciousness that there, indeed, existed a disparity in the American education system based on a student's social class and family's income status. The most significant provision of this law was Title I.

The creators of the Title I provision of the law "aimed to increase opportunity for disadvantaged children through an influx of federal funds to the public and private schools serving them, awarding funds to school districts based largely on a proxy for child poverty counts" (Gordon & Reber, 2015, p. 129). Furthermore, Gordon and Reber (2015) remarked that "Congress intended for local districts to target their grants to their highest poverty schools and, within those schools, to direct services to the most educationally deprived children" (p. 129). In short, the creation of Title I heralded a new day in education wherein the government not only formally acknowledged impoverished American children received a lesser education, but also was determined to address the issue to ensure equality.

Academics and politicians alike have mixed thoughts on the effectiveness of Title I. Cascio and Reber (2013) argued, "While the intended use of Title I funds is for supplemental academic programs for *educationally deprived* children from low-income families, Title I funds have often been used in other ways" (p. 424). Farkas, Hall, Finn,

Carnine, and Meeder (2000) remarked, “Deeply embedded in the existing culture of schools, it (Title I) has funded additional teachers and aides who work with the lowest performing children in small groups or one-to-one ... These teachers and aides often have little special training” (p. 60). However, to assert Title I programs have missed the mark entirely would be inaccurate. Despite the criticism Title I receives, in the school year 2009-2010, “more than 56,000 public schools across the country used Title I funds to provide additional academic support and learning opportunities to help low-achieving children master challenging curricula and meet state standards in core academic subjects” (NCES, 2018, para 3). In sum, Title I, in all its permutations, has aided children deserving of a better opportunity while still needing room for improvement.

Unfortunately, this was not a universally adopted viewpoint, and when Ronald Reagan began his first of two presidential terms with the public and personal stance that the Department of Education should be abolished altogether, his Secretary of Education would commission a report that would impact the national educational agenda for years to come.

In 1981 at the behest of Secretary of Education Terrel Bell, the National Commission on Excellence in Education was formed and began an 18-month journey into “lead(ing) the efforts and discover(ing) what continued deficiencies existed in the American (education) system” (Good, 2010, p. 368). Comprised of politicians, educators, and business people, the 20-member committee “read numerous reports, heard from teachers at multiple levels, made site visits to observe conditions, and spoke with businesses to discuss the state of current preparedness of employees” (Good, 2010, p. 369). What they collaboratively reported after their research was a document, which

would create a “crisis so far-reaching in its impact that it still governs the way we think about public education 30 years later” (Mehta, 2015, p. 20). The document does not tread lightly:

Our Nation is at risk. Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world. This report is concerned with only one of the many causes and dimensions of the problem, but it is the one that undergirds American prosperity, security, and civility. We report to the American people that while we can take justifiable pride in what our schools and colleges have historically accomplished and contributed to the United States and the well-being of its people, the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future -as a Nation and a people. What was unimaginable a generation ago has begun to occur. Others are matching and surpassing our educational attainments. If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war. As it stands, we have allowed this to happen to ourselves. (National Commission on Excellence in Education, 1983, p. 121)

Within the cultural context of the Cold War at the time, the wording of the report was a definitive call to arms. By committee member (and Vice-Chair) Yvonne Larsen’s admission, the strident wording in the document was deliberate: “We wanted to get America’s attention and we thought you couldn’t do it with saccharin and sugar... So therefore yes, we thought we needed strong language” (Good, 2010, p. 378). The

committee succeeded getting America's attention with language that was so effective it created one of "the most influential public policy polemics in the history of the United States" (Guthrie & Springer, 2004, p. 8). Commonly referred to as a *clarion call*, the report with its unforgiving wording achieved the opposite of Reagan's wishes: rather than ending the Department of Education, the government suddenly became more involved than ever in teaching accountability and student achievement (Good, 2010; Guthrie & Springer, 2004; Mehta, 2015).

The findings of the report were numerous and unrelenting:

Some 23 million American adults are functionally illiterate by the simplest tests of everyday reading, writing, and comprehension. About 13 percent of all 17-year olds in the United States can be considered functionally illiterate. Functional illiteracy among minority youth may run as high as 40 percent. Many 17-year-olds do not possess the "higher order" intellectual skills we should expect of them. (National Commission on Excellence in Education, 1983, p. 15)

Identification of American educational shortcomings was specific and unequivocal. The Nation at Risk (NAR) report was not without solutions. To address the egregious falling behind it was recommended, "a revision of high school graduation requirements. This revised curriculum was comprised of new core courses..." wherein "...high schools require students to enroll in 4 years of English, 3 years of mathematics, 3 years of science, 3 years of social studies, and half a year of computer science" (Caboni & Adisu, 2004, p. 165).

In *A Nation Accountable*, an examination of the shift in education policy in America in the 25 years following the NAR report, Secretary of Education Margaret

Spellings (2008) noted, “Another important sign of progress is the collection of rigorous research on what works in the classroom. In 1997, the National Reading Panel (NRP) was assembled to review research on reading instruction” (p. 14). The NRP has become a microcosm of the continued and enduring response to the NAR report with its specific focus on literacy.

### **Components of Reading**

In 1997, the NRP was formed when Congress asked the National Institute of Child Health and Human Development to work closely with the U.S. Department of Education on the topic of reading. The duty of this panel would be to “evaluate existing research and evidence to find the best ways of teaching children to read” (National Institutes of Health, 2017, p. 1). The panel was comprised of 14 individuals: mostly scholars, some teachers, and one superintendent. Given the stringent processes in which the panel approached their work, the strong credibility of their findings is deserved.

These processes included:

1. A prohibition of ties of panel members to commercial publishers and an exhaustive disclosure of personal finances
  2. 5 public hearings with more than 400 teachers sharing testimony
  3. A predetermined set of *synthesis and research procedures* followed with fidelity
  4. Drawing only from research which yielded high measurable results in reading achievement
  5. Basing conclusions only when the findings yielded a high degree of certainty.
- (Shanahan, 2006, p. 2)

After two years of research and over 100,000 documents, the NRP issued a report that established the 5 Pillars of Reading. These findings of the panel became the national cornerstone in future curricula and policy-making turning national attention to phonemic awareness, phonics, fluency, guided oral reading, comprehension, and vocabulary development (Shanahan, 2006). Each of these components play an important role in becoming an effective reader.

Phonemic awareness is defined as the ability to determine and manipulate the sounds in the oral language (Carlson, Jenkins, Li, & Brownell, 2013). Phonemic awareness is an early predictor in a pre-school child's acquisition of sound, language, reading, and, ultimately, the ability to connect sounds to the printed word. Wade-Woolley (2016) remarked "Phonological awareness, the ability to reflect on and manipulate sublexical units of speech, has a particular predictive power in children's literacy setting the stage for the acquisition of the alphabetic principle" (pp. 371-372). Phonemic awareness is the earliest developmental stage of literacy occurring as babies learn and echo the sounds they hear. It is widely believed that the oral language developed in the home prior to schooling is the strongest indicator of future reading success (Snow, Burns, & Griffin, 1998). Tankersley (2003) remarked, "Poorly developed phonemic awareness skills distinguish low socioeconomic preschoolers from their more advantaged peers" (p. 9). Coming to school with an understanding of sounds prepares the young child to begin letter-sound identification and develop the ability to identify beginning, medial, and end sounds. It is the reciprocity of these sounds and letter knowledge help the earliest of readers develop the beginnings of an understanding of the printed word: phonics.



Not to be confused with phonemic awareness, phonics is “the ability to identify that there is a relationship between the individual sounds (phonemes) of the spoken language and the letters (graphemes) of the written language” (Tankersley, 2003, p. 31). When early readers learn that letters and letter groupings are linked to sounds, they can begin to decode unknown words and the more adept they become at decoding, the more they can turn their cognitive attention to other aspects of what they are reading, like comprehension. Phonics-based instruction generally includes paired-association activities that emphasize the associations between spoken phonemes and illustrations or tangible objects to teach sounds in speech (Nicholson, 2006, p. 33). Through the manipulation of rhyme, words, and syllabication, early readers gain the foundational knowledge they need to understand predictable patterns and relationships between letters, sounds, and words.

Fluency has been defined as “the ability to read text quickly, accurately and with proper expression” (NRP, 2000, p. 3). Fluency is the automaticity in the decoding and understanding of the printed word. Readers who decode text easily, smoothly, and at a good pace have an advantage over readers who cannot (Chall, Jacobs, & Baldwin, 1990). Fluency also directly correlates to comprehension. Tankersley (2003) noted, “Fluent readers are able to concentrate on making meaning from what they are reading because they don’t need to struggle with decoding” (p. 74). When a reader is fluent, the act of reading is natural and fluid because the reader is spending less time consciously processing the text and more time processing the intentions of the text. Pikulski & Chard (2005) further refined fluency as “efficient, effective word recognition skills that permit a reader to construct the meaning of text. Fluency is manifested in accurate, rapid,

expressive oral reading and is applied during, and makes possible, silent reading comprehension” (p. 510).

“Vocabulary is the meaning and pronunciation of words that we use in communication. It is simply the number of words that we understand or can actively use to listen, speak, read, or write” (Tankersley, 2003, p. 52). According to NRP (2000), vocabulary serves as a pivotal link between oral and written language. More importantly, like fluency, vocabulary directly impacts comprehension. Vocabulary is a key component in fluency and comprehension. In early reading, if a decoded word is not present in a student’s repertoire, then the beginning reader will not be able to discern its meaning (Pikulski & Chard, 2005). Unfortunately, “though the causal relationship between vocabulary knowledge and comprehension has been verified repeatedly, not all reading teachers realize the importance vocabulary learning has to reading fluency and understanding what is read” (Blair-Larsen & Williams, 1999, p. 26). Therefore, it is critical that explicit vocabulary instruction be an intrinsic part of a successful reading program. Baumann and Kame’enui (2004) agreed noting, “Explicit vocabulary instruction that connects new vocabulary to prior knowledge is thought to have the largest effect on vocabulary gains” (p. 103).

The importance of comprehension with young readers cannot be overstated. It is, quite simply, “the objective of reading” (Blair-Larsen & Williams, 1999, p. 4). Comprehension “requires making meaning from words when listening, speaking, reading, and writing. Good readers have a purpose for reading and use their experiences and background knowledge to make sense of the text” (Tankerlsey, 2003, p. 90). Effective comprehension is constructive in its nature since “readers use both the schemata and

clues from the text as they comprehend” (Blair-Larsen & Williams, 1999, p. 37). What is instructionally significant about comprehension is what makes it occur. Typically, students who struggle with comprehension need specific cognitive strategies that more proficient readers may already innately possess enabling them to make connections more easily between the printed word and meaning. One research-based reading intervention program used to assist struggling readers is READ 180.

### **Research-Based Tier 3 Interventions**

Intervention programs developed by researchers are as vast and numerous as reading problems. Some are phonics based while others target fluency. Still, others may concentrate on phonemic awareness, vocabulary, or comprehension. Not surprisingly, as the students get older, the options get fewer. For this study, the research-based intervention of READ 180 was explored.

**READ 180.** Founded on the pedagogy that technology could be applied to RTI, READ 180 was developed to meet the individual learning needs of struggling readers better and used this information to create student success. Hasselbring of Vanderbilt University and his Cognition and Technology team developed software to address the RTI model and literacy need in education. This innovative instructional model broke new ground by creating a 90-minute block with three 30-minute stations: one with small group teacher instruction, one with the computer instruction and reading assessment, and one with independent reading (What Works Clearinghouse [WWC], 2016). The adaptive software Hasselbring designed targeted the areas of reading a student needed the most help. Hasselbring ushered in a new era of accessible technology to support RTI that, most importantly, got results. Scholastic Education quickly joined Hasselbring and

Vanderbilt University to “replicate the best practices of its research in a published program.” By adopting the Lexile Framework for Reading as its leveling system, the software became even more effective and developed a common metric for measuring text difficulty and student reading level (Hasselbring, 2016). The software was unprecedented and filled a gaping hole for educators: taking the guesswork and laborious hours out of the process of determining each student’s reading level, teachers using the software could spend their time in engaging in instructional support rather than assessment to determine text readiness. The importance of this cannot be overlooked. Prewett et al. (2012) noted:

middle schools often reported logistical challenges when providing individualized small group instruction ... the competing simultaneous demands of improving students’ basic skill sets while helping them learn and use content knowledge ... can pose difficulties for implementing RTI in secondary schools. (p. 136)

Further, the READ 180 software supports a vast span of lexiles further aiding the teacher by matching the learner to appropriate texts. The program builds fluency, vocabulary, and comprehension (Hasselbring, 2016).

The instructional model of READ 180 is based on a 90-minute instructional cycle and rotates the student from a teacher directed, whole group instruction and then through subsequent instructional stations involving independent reading, small group instruction, and instructional technology (Hasselbring, 2016). The benefits for the students in this instructional model are numerous. First, the learning is tailored to the specific needs of the students. When breaking down the large groups into smaller sub-groups, the teacher can group the students by their reading needs based on the five pillars and individualize

and scaffold small group instruction. Further, the computer program delivers to the student an “individualized learning path that allows them to work within their zone of proximal development” (Hasselbring, 2016, p. 34).

READ 180 has an extensive list of positive results. Cypress-Fairbanks Independent School District (ISD) in Cypress, Texas reported that “Across all grades... the percentage of READ 180 students achieving Proficiency on TAKS Reading increased from 2008–2009” (Scholastic Research, 2016, p. 10). TAKS is the Texas Assessment of Knowledge and Skills, the Texas permutation of educational accountability. Cypress-Fairbanks ISD is not alone. In the *Compendium of READ 180 Research*, 16 years of school districts with marked improvements data show upper elementary, middle school, and high school struggling readers improve when using READ 180 (Scholastic Research, 2014).

Further, What Works Clearinghouse (WWC) has endorsed the READ 180 program. WWC (2011), an extension of the US Department of Education, declared its mission as determining what works in education based on quality data and research. In its examination of the efficacy of READ 180, WWC (2016) noted, “READ 180<sup>®</sup> was found to have positive effects on comprehension and general literacy achievement, potentially positive effects on reading fluency, and no discernible effects on alphabets for adolescent readers” (p. 1). READ 180 has been commonly used as an RTI intervention based on its proven effectiveness and fidelity to the current RTI model.

READ 180 has been widely used by a myriad of different institutions targeting struggling readers. The reason for this is because its mixed-method approach is promising for students who have varying needs in their reading struggles. Kim, Samson,

Fitzgerald, and Hartry (2010) remark that READ 180 is “literacy instruction that is designed to help struggling readers in grades 4-12 improve their word reading efficiency, reading comprehension and vocabulary, and oral reading fluency... (and is) scaffolded by computer activities” (p. 1111). Further, READ 180 seems like a promising tool as its design “...offer(s) direct reading instruction with age appropriate content” (Parker, Holland & Jones, 2013, p. 3). With powerful claims from Scholastic about its capabilities, “READ 180 is marketed as a research-based program that can improve reading levels of participating students by 2-3 years” (Kim, Caputo, Hartry, & Fitzgerald, 2011, p. 184).

However, despite these claims, the results and notable impact on struggling readers who have participated in the READ 180 literacy program are mixed. Some researchers have noted improvements in varying degrees while others have claimed progress is not made with any significance. In their comparative study of READ 180 and Voyager Journeys III (both literacy intervention programs), Parker et al. (2013) found “no conclusive evidence to support either reading program” (p. 7). Despite this conclusion, it was noted that ninth-grade students enrolled in the READ 180 program had “statistically higher results” on the Texas Assessment of Knowledge and Skills (TAKS) than that of the other test group who did not have READ 180 (p. 1). Kim et al. (2010) reported similar findings in their study remarking “our experimental study revealed no significant impact on norm-referenced measures of word reading efficiency and reading comprehension and vocabulary” (p. 1125). In yet another study by Kim et al. (2011), the researchers concluded READ 180 positively impacted moderate risk students in the 40th to 45th percentile but that was a narrow subgroup given the number of students targeted,

and the lower and neediest of learners showed no marked improvement. All these studies had natural limitations, but the conclusions were similar: READ 180 had little or no impact.

On the contrary, other researchers have found improvements when READ 180 is implemented. Interestingly, Kim et al. (2010) sought to determine if READ 180 impacted student literacy differently based on ethnicity, socio-economic status, age, and gender and found “no evidence of effects on the measure of word reading efficiency and reading comprehension and vocabulary” (p. 1120). These findings stand in stark contrast to Lombardi and Behrman’s (2015) study of READ 180 and its impact on Hispanic high schoolers. The researchers found their subjects made “gains in reading... for all four sub-groups” (pp. 169-170). They concluded that “English learners who participated in the balanced literacy program achieved higher scores in reading on the high school graduation test than the English learners who did not participate” (p. 171). Another contradiction to Kim et al.’s (2010) claim originated in a study of incarcerated youth. Zhu, Loadman, Lomax, and Moore (2010) found READ 180 “had a positive impact on the low-performing incarcerated youth” gaining approximately “70-80 SRI points in a year” (p. 5).

Despite the contradicting claims from the varying studies, all seem to agree on the common notion that a scarcity of research exists on READ 180. Kim et al. (2010) remarked, “Of the existing studies, there is a dearth of rigorous studies by independent evaluators” (p. 112). Zhu et al. (2010) emphasized: “the majority of these studies are inadequate to provide strong evidence for causal conclusions of the intervention effectiveness” (p. 1). Finally, Kim et al. (2011) reiterated the notion in a later study

remarking “Despite widespread use of the program with upper elementary through high school students, there is limited empirical evidence to support its effectiveness” (p. 183).

### **Effective Practice in RTI**

The RTI model is usually a three-tiered approach designed to progressively intensify the intervention application as the learning needs of the students get resolved or do not get resolved. Graves, Duesbery, et al. (2011) noted, “RTI is typically defined as a three-tiered approach that includes Tiers I and II in general education; literacy development by general education teachers based on evidence-based approaches defines Tier 1” (p. 642). Prewett et al. (2012) elaborated, “With RTI, schools identify students at risk for poor learning outcomes, monitor student progress, provide evidence-based interventions and adjust the intensity and nature of these interventions depending on a student’s responsiveness...” (p. 136). However, there is no standard by which tiers are created universally. Rather, schools tailor their model to the needs of their students. Allington (2009) observed “Currently, this three-tiered model is being popularized. However, nothing in the federal law mentions how many tiers an intervention might include” (p. 23). This research best aligns with the three-tier model.

Typically, T1 is considered the general classroom setting. Brozo (2010) explained, “The first (tier) represents instruction and services available to all students, generally provided at the classroom level” (p. 277). Lenski (2011) concurred, “Tier 1 has been defined as the regular classroom. In secondary schools, this means the content area of English, social studies, science, math, and so on” (p. 277). All students are T1 students ... but not all T1 students experience success. The students needing more attention are then classified as T2.



T2 is designed to meet the needs of students who do not experience success at T1. Allington (2009) defined T2 as typically 10-15% of students who are targeted in small group interventions. In this tier, the group becomes smaller, and the areas needing focus become clearer. Lenski (2011) stated T2 “consists of targeted instruction, either with an intervention program or an individualized approach that addresses students’ specific needs” (p. 277). At this level of intervention, trained teachers can focus on the area of reading in which the student struggles.

T3 is the final level of intervention wherein students receive one-on-one instruction. This intensive intervention is progress monitored, and if no growth is shown, the student will then “most likely be identified as having a learning disability” (p. 277). Allington (2009) noted this entire process is geared “to reduce the number of students who are referred for special education services” (p. 22). T3 also represents 5-10% of students and has “intensive, individualized tutorial interventions” with longer duration and high intensity (p. 23). T3 is the last place for students who have not responded to previous intervention services.

Brozo (2010) remarked, “Although research around RTI at the elementary level has been ongoing, studies into the best ways of implementing the process for secondary students are scant” (p. 2). Ciullo, Lembke, and Carlisle (2016) echoed the sentiment noting, “Despite extensive adoption and understanding of Response to Intervention (RTI) in elementary school, a paucity of research exists regarding implementation at the middle school level” (p. 44). Prewett et al. (2012) agreed and stated, “However, little research exists to establish the efficacy of RTI in secondary schools, and practitioners have many questions and concerns regarding logistical and structural conditions...” (p. 137).

Despite agreement among academics that fewer studies have occurred about the effectiveness of implementation at the secondary level, secondary schools are still endeavoring to aid their struggling readers. Prewett et al. (2012) elaborated:

Although scientific knowledge about the effectiveness of RTI in secondary settings is lacking, and even called into question by some researchers, secondary schools across the nation are continuing to implement RTI as means of closing the basic skills achievement gap and perhaps preventing academic failure in content areas. (p. 137)

There remains the question as to whether middle school RTI can help a struggling reader gain lost ground. Some academics regard these attempts as unlikely to have an impact. “While the use of RTI may alleviate the growing dissatisfaction with the ability-achievement discrepancy model, little success has been found in applying this approach at the secondary levels” (Graves, Brandon, et al., 2011, p. 74). Although there may be a debate about the impact RTI has at the secondary level, it remains important to understand the best practices available for struggling readers.

Certified and trained personnel must be charged with implementing effective T3 RTI interventions to tackle the problem and, ideally, content area teachers become involved. Utilizing certified and trained personnel is not always an easy task since buy-in from over delivering content area teachers is not an easy sell. Jacobs (2008) explained:

Content-area teachers are concerned primarily, and rightly so, with students’ achievement of content-specific goals. While most preservice and in-service efforts provide teachers with a variety of skill-based strategies for integrating reading into their instruction, they generally do not provide teachers with the

means to examine why and how reading strategies can facilitate content-area learning. (p. 23)

Reading literacy affects the core subjects. Teachers in other disciplines need to recognize their students' literacy struggles cause collateral damage in student learning in their classrooms. If content area teachers take a more holistic approach, they will discover helping their students grow as readers can advance achievement in their disciplines as well. It is important for educational leaders to get buy-in from core area teachers on underwriting literacy in their classrooms. Mitchell et al. (2012) stated specificity helps by: "...ensuring that there are clear role definitions for all stakeholders when implementing an RTI school reform model..." (p. 72). It is a necessity to get certified personnel to help with this ambitious undertaking. Fagella-Luby and Wardwell (2011) noted success is tied to, "...considering when and how to deliver supplemental instruction, and which practitioners are qualified and available to deliver intensive instruction" (p. 35). Teacher buy-in at the secondary level cannot gain support or momentum if the teachers themselves do not have support: "Obviously, mandated core programs did not provide sufficient support to teachers of low-achieving poor children" (McGill-Franzen, Zmach, Solic, & Zeig, 2006, p. 84). Without support, teachers cannot help achieve the goal of improved student literacy. They may not know how to help unless sufficiently trained. For example, a high school history teacher "is under strong pressure to cover the content standards and grade-level expectancies of U.S. history, and may only be superficially knowledgeable of and less experienced in content literacy strategies" (Brozo, 2010, p. 2).

Literacy intervention needs its specialists. In fact, the knowledge professionals are the most needed educators: “Too often we don’t have expert teachers working with struggling readers. Too often, struggling readers work with paraprofessionals in their reading intervention services. This is unfortunate because paraprofessionals are usually the least expert adults working with children in schools” (Allington, 2013, p. 523). Mitchell et al. (2012) agreed, noting “Ideally, increasing the intensity (of intervention as tier increase) is achieved by (a) using more teacher-mediated, systematic, and explicit instruction; (b) creating smaller and more homogeneous student groupings; and/or (c) using teachers with greater expertise” (p. 54). Teacher expertise is but one of the most common elements mentioned in the literature; explicit instruction is yet another.

Metacognition is the ability to be consciously aware of one’s learning and thinking. The idea behind metacognition is not new. In fact, according to Cubukcu (2008), “One of the first definitions of metacognition comes from Flavell (1976), who described it as one’s knowledge concerning one’s own cognitive processes and products of anything related to them” (p. 83).

Baird (1990) synthesized Flavell’s definition as: “Metacognition refers to the knowledge, awareness and control of one’s learning.” Cubukcu (2008) then summarized both ideas as: “Metacognitive development can therefore be described as a development in one’s metacognitive abilities, i.e., the move to greater knowledge, awareness and control of one’s learning” (p. 83). This explicitness, expected in the learner and the teacher, is recognized as developing strategic and purposeful thinkers. Rather than develop readers who can regurgitate text, literacy experts now help learners focus on conscious thought processes that will help them understand not only what they read but

how they should be reading: “Thus, while more-recent textbooks on the teaching of reading still focus on specific reading skills, they do so in the context of the reading process for ‘strategic reading’; that is, the intentional and deliberate use of strategies that support comprehension, such as metacognition” (Jacobs, 2008, p. 21). Truly, “metacognitive awareness means that readers are aware of what they do when they read, what to do when they encounter difficulties, and how to select strategies to accomplish their purposes for reading” (Blair-Larsen & Williams, 1999, p. 44). This focus on building explicit strategies and cognitive skills in struggling readers has prompted the National Council of Teachers of English to revise their definition of adolescent literacy. They state:

...it is more than reading and writing. It involves purposeful social and cognitive processes. It helps individuals discover ideas and make meaning ... This complex view of literacy builds upon but extends beyond ... features like phonemic awareness and word recognition (Jacobs, 2008, p. 15).

Explicit instruction, therefore, is regarded as the panacea to many of the ills of struggling readers:

Given that inference making is the strongest predictor of comprehension among adolescent readers, and that less skilled adolescent readers are less accurate and slower at forming text ... explicit instruction in inference making may lead to significant improvements in reading comprehension among struggling readers in the middle grades (Barth & Elleman, 2017, p. 32).

Tankersley (2003) added, “...it is vital that we explicitly teach students how to select which strategy to use and how to apply it with specific types of text” (p. 144).

Using explicit instruction, which calls to student attention and consciousness their metacognitive processes, struggling readers can make powerful strides in taking control of their thinking and their reading lives. That is if they get continued exposure to the printed word.

The fourth and final theme to emerge from research is that of the onus of prioritizing time for reading: both independent reading and reading guided by the teacher in small groups. The importance of this cannot be overstated since “individual differences in exposure to print can predict differences in growth in reading comprehension ability throughout the elementary grades and thereafter” (Cunningham & Stanovich, 1997, p. 940). Modern educators today are encouraged to create space and time in the school day for independent reading in the classroom as a common practice since “If we want to foster reading development, then we must design lessons that provide the opportunities for struggling readers to actually read” (Allington, 2013, p. 526). Providing opportunities for struggling readers to read can be achieved through “each day, including time for both guided instruction and independent work. Otherwise, students will never internalize skills and make them their own” (Blair-Larsen & Williams, 1999, p. 107). Creating a school culture to reinforce the importance of the daily reading ritual is key: “In-services always included at least a thirty-minute session on one aspect of implementation. Students carry books throughout the day and are expected to read whenever they have time” (Pfeiffer, 2011, p. 62). In summary, to be better readers, kids need time to read.

**Summary**

This literature review included a historical review of the reauthorization of IDEA and development of RTI, school reform, components of reading, research-based T3 interventions, and the analysis of RTI effective practices.. Based on the research in this chapter, the goal of improving students' reading comprehension skills has been around for decades. Response to Intervention has been used as a program to help improve students' reading skills and READ 180 is one research-based program that school districts have used to help address the needs of struggling readers. Although there are many reading intervention methods out there, some of the common effective practices include using explicit instruction and allowing for independent reading time. Chapter 3 includes the methodology utilized in this study.

## **Chapter 3**

### **Methods**

The purpose of this study was to determine the effectiveness of T3 interventions at the middle school level by analyzing the extent that there was a difference in the level of MAP ELA proficiency and student growth on the STAR Reading Assessment when students were enrolled in a research-based T3 program compared to a non-research based T3 program. In this chapter, the research design, selection of participants, measurement, data collection procedures, data analyses and hypothesis testing, and limitations are presented.

#### **Research Design**

The study was quantitative and utilized a quasi-experimental design, which was selected because the researcher investigated the effectiveness of T3 interventions at the middle school level by comparing a research-based reading intervention program to a non-research-based district developed program. Two dependent variables were specified for this research. The first dependent variable was the MAP ELA scores for seventh-grade students during the 2015-2016 school year and seventh-grade students during the 2016-2017 school year. The second dependent variable was the change in STAR Reading scale scores from fall to winter, winter to spring, and fall to spring. The independent variable was participation in a T3 reading intervention program. The two categories of the T3 reading intervention program status were: participated in the research-based intervention of READ 180 and participated in a non-research-based district developed intervention of a Reading Essentials program.



### **Selection of Participants**

Non-random purposive sampling was used by the researcher for this study. Lunenburg and Irby (2008) defined purposive sampling as, “selecting a sample based on the researcher’s experience or knowledge of the group to be sampled” (p. 175). To be included in the sample data, the T3 students must have registered a seventh grade MAP ELA score in District X during the 2015-2016 school year or 2016-2017 school year. In addition, the students must have registered a STAR scale score in the fall, winter, and spring of their seventh-grade year during the 2015-2016 school year or 2016-2017 school year. Students who were placed in the READ 180 program and Reading Essentials program remained in the program the entire school year. A total of 36 seventh-grade students were placed in the READ 180 program, and 41 seventh-grade students were placed in the Reading Essentials program.

### **Measurement**

To determine whether a student was placed in a T3 reading program, District X analyzed student assessment data from the STAR Reading Assessment. The STAR Reading Assessment is a computerized assessment program designed to help educators evaluate and determine individual students' strengths and areas for growth in reading. The comprehensiveness of the program, which is targeted for K-12 students, can offer educators valuable insight on areas for student improvement as it assesses “forty-six skills across eleven domains” (Meador, 2017). It offers the teacher, parent, and students valuable reporting information as well particularly attending to individual student growth over time as well as where a student falls within his or her grade level benchmark.

One of the benefits of the STAR assessment is the variety of scores it provides. Because of this, it is both a criterion-referenced and norm-referenced method of measuring student knowledge. It can be used not only to progress monitor but also for comparative data. It provides percentile rank, the zone of proximal development, a percentile rank range, and a grade equivalent score:

The scaled score (SS) is figured based on the difficulty of the questions as well of the number of questions that were correct. STAR Reading uses a scale range of 0–1400. This score can be used to compare students to each other as well as themselves over time (Meador, 2017, p. 1).

The percentile rank (PR) is a score based on national comparison. It allows students to be compared to other students nationally that are in the same grade. For example, a student who scores in the 77th percentile scores better than 76% of students in their grade but lower than 23% of students in their grade (Meador, 2017, p. 1).

The grade equivalent (GE) represents how a student performs compared to other students nationally. It is not a percentage. For example, a fifth-grade student who scores a grade equivalent of 8.3 scores as well as a student who is in the eighth grade and third month (Meador, 2017, p. 1).

Zone of Proximal Development (ZPD) is the range of readability which a student should be required to select books. Reading in this range provides students with the optimal opportunity to maximize reading growth. Books at this level are not too easy or too difficult for the student to read (Meador, 2017).

District X implemented two T3 intervention programs, and the student achievement results were compared and analyzed in this study. The first T3 intervention

program was READ 180. The Institute for Education Sciences created a resource used by educators to identify various reading intervention programs that could be used in schools (Shannahan, 2006). According to the U.S. Department of Education (2011), the *What Works Clearinghouse* has used scientifically valid criteria to create reports on effective intervention programs for students. READ 180 was one of the intervention programs selected by *What Works Clearing House* as valid and effective (U.S. Department of Education, 2011). MAP ELA scale scores and STAR Reading Assessment scale scores were used to measure the effectiveness of the READ 180 program.

The second T3 intervention program was District X's Reading Essentials program. Prior to implementing the Reading Essentials program in District X, a panel of subject-matter experts was recruited to create the intervention program and ensure its validity. These experts were all certified teachers and administrators with specific backgrounds in reading and intervention programs at the secondary level. After piloting various reading resources, Fountas and Pinnell were selected as the reading curriculum to be followed for the intervention program (District X, 2016b). MAP ELA scale scores and STAR Reading Assessment scale scores were used to measure the effectiveness of the District X's Reading Essentials program.

The two instruments used to collect data in this study are described in this section. The MAP ELA scale scores and the calculation of change scores from the STAR Reading Assessment are also described. In addition to describing the measurement tools, each instrument's reliability and validity is also presented.

The MAP ELA assessment provides information regarding academic achievement in English Language Arts. Specifically, the information is used to “analyze individual student performance related to the instruction of the Grade Level Expectations (GLEs) and to gauge the overall quality of education throughout Missouri” (DESE, 2009a, p. 5). Each school year, the MAP ELA is administered to all students in grades three through ten (DESE, 2009b). DESE (2014) stated that the ELA assessment consists of 52 questions. There are three types of questions on the ELA portion of the MAP assessment: selected response, constructed-response, and performance events (DESE, 2009b). All students are also administered a writing performance event to demonstrate proficiency in writing (DESE, 2009b).

District X administers the MAP assessment each year and uses the results to make future educational decisions in the district related to teaching and learning. DESE outlined specific descriptions for student MAP scores. Each assessment results in a single scale score that represents the total number of correct responses earned (DESE, 2009b). A student receives a scale score to represent their achievement on the total standardized assessment. This score encompasses the entire performance of a student in a specific subject. DESE (2009b) described the components that are covered on each ELA exam as items that involve proficiency in reading comprehension, formal and informal writing, a broad understanding of culture and language, and evaluation and interpretation. Scale scores are used to measure the variables in RQ1. Scale scores for seventh-grade students can range from 0-1400 with a score of below 610 representing Below Basic and a score of above 1176 representing Advanced.

The validity and reliability of the MAP assessment are discussed in a report published by DESE in 2009. It is important for an assessment to align with its purpose and accurately portray its intended results. The MAP assessment creators used validity as an essential component in its creation (DESE, 2009a). CTB McGraw-Hill (2009) found that the MAP assessment does measure the components it is intended to measure based on item and score patterns they identified from test questions and responses. In addition, DESE (2009a) stated its plan to continue conducting internal evaluations on the validity of MAP assessments as new tests are being developed and test creators adhere to industry standards during the stages of test development.

DESE (2009a) evaluated the reliability of the MAP assessment by using Cronbach's alpha coefficients. This ratio represents the variance of true assessment scores to observed assessment scores with possible values ranging from 0 to 1 where the closer the reliability coefficient is to 1, the more consistent the scores (CTB McGraw-Hill, 2009). As seen in Table 1, the reliability coefficients for the MAP ELA assessment are 0.90 or greater. These coefficients indicate strong evidence for reliability.

Table 1

*Reliability of the MAP ELA Assessment Test*

Grade	Cronbach's Alpha
6	0.90
7	0.92
8	0.91

*Note.* Adapted from *Missouri Assessment Program grade level assessments:*

*Technical report*, by DESE, 2009. Retrieved from <https://dese.mo.gov/sites/default/files/2009-MAP-Technical-Report.pdf>

The STAR Reading Assessment is a computer-adapted test (CAT) that compares the reading achievement of students to other students across the nation (Renaissance Learning, 2012). Student data that is collected using the STAR Reading Assessment includes a scaled score (SS), a percentile rank (PR), a grade-equivalent score, a normal curve equivalent, a zone of proximal development (ZPD), an instructional reading level, and an estimated oral reading fluency score (Renaissance Learning, 2010). Based on the computer-adaptive technology, the assessment is individualized for each student and adjusts to the reading ability of the student. Test questions measure student comprehension based on vocabulary, background knowledge, and semantic and syntactical skills (Renaissance Learning, 2010). One scaled score is created based on the components listed. Student scaled scores from the fall, winter, and spring were analyzed to determine growth over the course of a school year.

According to Tan and Michel (2011) and Renaissance Learning (2010), the scaled scores show the best representation of absolute growth over time. At the beginning of the 2015-2016 and 2016-2017 school years, all seventh-grade students at Middle School

ABC were universally screened using the STAR Computer-Adaptive Test (CAT) by Renaissance Learning. Using this screener, students who had below 610 scaled scores were identified as T3 students and placed in the T3 intervention program utilized that school year.

Although the STAR Reading Assessment produces additional feedback on student reading levels, the scaled scores from the STAR Assessment were used in this study. The STAR Reading scale scores were used to calculate three change variables because it was administered in the fall, winter, and spring of the 2015-2016 and 2016-2017 school years. The growth students made from fall to winter, winter to spring, and fall to spring were calculated by subtracting the first score from the second. Fall to Winter Reading Growth = STAR winter reading score – STAR fall reading score.

The validity and reliability of the STAR Reading Assessment are based on the likeliness of a student correctly answering a question based on the ability of the student and the question's difficulty. Renaissance Learning (2010) stated that a statistically reliable and valid estimate of a student's reading aptitude is provided based on a student's configuration of correct and incorrect answers. In addition, a comparison of students' scores on the STAR assessment were matched to students' scores on other assessments, "including the California Achievement Test, DIBELS, FCAT, Iowa Test of Basic Skills, and Stanford Achievement Test" (Renaissance Learning, 2010, p. 9). The results of the analysis of the relationship between the STAR assessment scores and each of these yielded a high correlation (see Table 2). This high correlation supports the reliability of the STAR Reading Assessment in measuring what it intends to measure.

Table 2

*STAR Enterprise: Reading – Correlation Coefficients*

Type and Test	Grade	N	Range
<b>Concurrent</b>			
Suffolk Reading Scale	1-8	2,694	.78-.86
DIBEL's Orf	1-4	12,220	.71-.87
<b>Construct</b>			
DRP	3, 5, 7, 10	273-424	.76-.86
<b>Predictive</b>			
SAT9	2-6	44-389	.66-.73
CST	3-6	1,000+	.78-.81
SAT9	3-6	1,000+	.81-.83

*Note.* Adapted from *Screening Tools Chart*, by National Center on Response to Intervention, 2012.

Retrieved from <http://www.RTI4success.org/screeningTools>

Renaissance Learning (2010) reported that the STAR assessment has high reliability based on the individualization of each test. NCRTI (2012) stated that .60 is a good reliability level and .80 is very good. Based on the reliability data collected for the STAR assessment, its level is reported as exceeding .80 as is shown in Table 3 (NCRTI, 2012).



Table 3

*STAR Enterprise: Reading – Reliability Coefficients*

Type	Grade	N	Correlations	SEM
Generic	1–5	7,523–10,476	.89 –.91	36 – 62
Split Half	1–5	7,523–10,476	.88 –.89	
Retest	1–5	296–300	.82 –.89	
Generic	2–12	1,153–6,462	.90 –.93	71 – 83
Split Half	6–12	1,153–6,462	.89 –.91	
Retest	6–12	209–295	.80 –.90	

*Note.* Adapted from *Screening Tools Chart*, by National Center on Response to Intervention, 2012.

Retrieved from <http://www.RTI4success.org/screeningTools>

### **Data Collection Procedures**

Prior to collecting data for the study, the process to request permission from Baker University to conduct research was initiated with the submission of an Institutional Review Board (IRB) request to the university. The Baker University IRB approved the study on March 6, 2018 (see Appendix A). After receiving approval from the university, a Research Application Request to obtain permission from District X to conduct research was completed. The form was submitted to the Executive Director for Quality and Evaluation. The executive director granted permission to conduct the study on April 25, 2018 (see Appendix B). Historical data sets from 2015-2016 and 2016-2017 were harvested by the executive director, and random student numbers were generated and assigned to the data by a technology assistant. The data were then entered into the IBM SPSS® Statistics Faculty Pack 25 for Windows for analysis.

## **Data Analysis and Hypothesis Testing**

The research questions for this study set the foundation for the data analysis. Four research questions were used. The hypotheses were tested for statistically significant differences.

**RQ1.** To what extent is there a difference in the level of MAP ELA proficiency between seventh-grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh-grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year?

**H1.** There is a statistically significant difference in seventh grade MAP ELA proficiency between seventh-grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh-grade students who were enrolled in District X's Reading Essentials course 2016-2017 school year.

An independent samples *t* test was conducted to address RQ1. The two sample means were compared. The level of significance was set at .05.

**RQ2.** To what extent is there a difference in students' growth, as measured by the change in the fall to winter STAR Reading scale score, between seventh-grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh-grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year?

**H2.** There is a statistically significant difference in students' growth, as measured by the change in the fall to winter STAR Reading scale score, between seventh-grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh-

grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year.

An independent samples *t* test was conducted to address RQ2. The two sample means were compared. The level of significance was set at .05.

**RQ3.** To what extent is there a difference in students' growth, as measured by the change in the winter to spring STAR Reading scale score, between seventh grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year?

**H3.** There is a statistically significant difference in students' growth, as measured by the change in the winter to spring STAR Reading scale score, between seventh-grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh-grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year.

An independent samples *t* test was conducted to address RQ3. The two sample means were compared. The level of significance was set at .05.

**RQ4.** To what extent is there a difference in students' growth, as measured by the change in the fall to spring STAR Reading scale score, between seventh grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year?

**H4.** There is a statistically significant difference in students' growth, as measured by the change in the fall to spring STAR Reading scale score, between seventh-grade

students who were enrolled in READ180 during the 2015-2016 school year and seventh-grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year.

An independent samples *t* test was conducted to address RQ4. The two sample means were compared. The level of significance was set at .05.

### **Limitations**

According to Lunenburg and Irby (2008), "limitations are factors that may have an effect on the interpretation of the findings or on the generalizability of the results" (p. 133). The researcher identified the following limitations for this study:

1. The number of seventh-grade students at ABC Middle School during the 2015-2016 school year and 2016-2017 school year.
2. The READ 180 program and the Reading Essentials program were new interventions being utilized at the middle school level.
3. Information on the implementation of the READ 180 program and the Reading Essentials program was not available.

### **Summary**

This chapter provided information regarding the methodology of the study. This study used a quantitative, quasi-experimental methodology with archived data from a Missouri school district in the areas of the MAP ELA assessment and STAR Reading Assessment to determine the extent to which two different T3 reading intervention programs influenced student growth. The results of the hypothesis testing conducted in this quantitative, quasi-experimental study are provided in Chapter 4.

## Chapter 4

### Results

The purpose of this study was to determine the effectiveness of T3 interventions at the middle school level by analyzing the extent that there was a difference in the level of MAP ELA proficiency and student growth on the STAR Reading Assessment when students were enrolled in a research-based T3 program compared to a non-research-based T3 program. The data analysis provided in this chapter addresses the four research questions in the current study. Chapter 4 includes the descriptive statistics for the study and the results of the hypothesis testing.

#### Descriptive Statistics

The descriptive statistics from this study were calculated based on the research questions created. Seventh-grade students' MAP ELA scale scores, fall STAR Reading scale scores, winter STAR Reading scale scores, and spring STAR Reading scale scores are found in Tables 4-7. Table 4 displays the MAP ELA proficiency levels of seventh-grade students during the 2015-2016 school year and 2016-2017 school year. Students are categorized by the number and percentage at each proficiency level.

Table 4

#### *MAP ELA Proficiency by Level*

Proficiency Level	<i>N</i>	%
Advanced	2	2.6
Proficient	18	23.4
Basic	19	24.7
Below Basic	38	49.4
Total	77	100.0

Students' placement into multiple T3 programs was based on their fall STAR Reading Assessment score of Below Basic. The data related to students' winter STAR Reading Assessment scale scores can be seen in Table 5. Of the 77 students who scored in the Below Basic category in the fall, 48 remained in the Below Basic category after the winter assessment and 29 students increased their scale score from fall to winter.

Table 5

*Winter STAR Reading Assessment Proficiency by Level*

Proficiency Level	<i>N</i>	%
Advanced	1	1.3
Proficient	13	16.9
Basic	15	19.5
Below Basic	48	62.3
Total	77	100.0

The statistics related to students' spring STAR Reading Assessment scale scores can be seen in Table 6. No students scored at the Advanced level in the spring. Of the 77 students, 11 scored Proficient, 19 scored Basic, and 47 students remained at the Below Basic level.

Table 6

*Spring STAR Reading Assessment Proficiency by Level*

Proficiency Level	<i>N</i>	%
Advanced	0	0.0
Proficient	11	14.3
Basic	19	24.7
Below Basic	47	61.0
Total	77	100.0

**Hypothesis Testing**

Four research questions were posed to address the purpose of this study and set the foundation for the data analysis. The hypotheses were tested for statistically significant differences. The results of the hypothesis tests are listed below.

**RQ1.** To what extent is there a difference in the level of MAP ELA proficiency between seventh-grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh-grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year?

**H1.** There is a statistically significant difference in seventh grade MAP ELA proficiency between seventh-grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh-grade students who were enrolled in District X's Reading Essentials course 2016-2017 school year.

An independent samples *t* test was conducted to address RQ1. The two sample means were compared. The level of significance was set at .05. The results of the two-sample *t* test indicated no difference between the two values,  $t = 1.339$ ,  $df = 75$ ,  $p = .185$ .

The descriptive statistics for this hypothesis test are included in Table 7. The sample

mean for District X's Reading Essentials students was not different from the sample mean for the READ 180 students. This finding does not support H1.

Table 7

*MAP ELA Scale Scores*

T3 Reading Program	<i>N</i>	<i>M</i>	<i>SD</i>
Reading Essentials	41	481.63	48.62
READ 180	36	466.58	49.90

**RQ2.** To what extent is there a difference in students' growth, as measured by the change in the fall to winter STAR Reading scale score, between seventh-grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh-grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year?

**H2.** There is a statistically significant difference in students' growth, as measured by the change in the fall to winter STAR Reading scale score, between seventh-grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh-grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year.

An independent samples *t* test was conducted to address RQ2. The two sample means were compared. The level of significance was set at .05. The results of the two-sample *t* test indicated no difference between the two values,  $t = 1.176$ ,  $df = 75$ ,  $p = .243$ . The descriptive statistics for this hypothesis test are included in Table 8. The sample mean for District X's Reading Essentials students was not different from the sample mean for the READ 180 students. This finding does not support H2.



Table 8

*STAR Reading Assessment Growth from Fall to Winter*

T3 Reading Program	<i>N</i>	<i>M</i>	<i>SD</i>
Reading Essentials	41	121.20	164.28
READ 180	36	81.61	125.36

**RQ3.** To what extent is there a difference in students' growth, as measured by the change in the winter to spring STAR Reading scale score, between seventh grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year?

**H3.** There is a statistically significant difference in students' growth, as measured by the change in the winter to spring STAR Reading scale score, between seventh-grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh-grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year.

An independent samples *t* test was conducted to address RQ3. The two sample means were compared. The level of significance was set at .05. The results of the two-sample *t* test indicated no difference between the two values,  $t = .545$ ,  $df = 75$ ,  $p = .588$ . The descriptive statistics for this hypothesis test are included in Table 9. The sample mean for District X's Reading Essentials students was not different from the sample mean for the READ 180 students. This finding does not support H3.

Table 9

*STAR Reading Assessment Growth from Winter to Spring*

T3 Reading Program	<i>N</i>	<i>M</i>	<i>SD</i>
Reading Essentials	41	4.51	115.69
READ 180	36	-8.69	94.11

**RQ4.** To what extent is there a difference in students' growth, as measured by the change in the fall to spring STAR Reading scale score, between seventh grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year?

**H4.** There is a statistically significant difference in students' growth, as measured by the change in the fall to spring STAR Reading scale score, between seventh-grade students who were enrolled in READ 180 during the 2015-2016 school year and seventh-grade students who were enrolled in District X's Reading Essentials course during the 2016-2017 school year.

An independent samples *t* test was conducted to address RQ4. The two sample means were compared. The level of significance was set at .05. The results of the two-sample *t* test indicated a marginally significant difference between the two values,  $t = 1.801$ ,  $df = 75$ ,  $p = .076$ . The descriptive statistics for this hypothesis test are included in Table 10. Although the difference was not statistically significant, the sample mean for District X's Reading Essentials students was higher than the sample mean for the READ 180 students. This finding supports H4.

Table 10

*STAR Reading Assessment Growth from Fall to Spring*

T3 Reading Program	<i>N</i>	<i>M</i>	<i>SD</i>
Reading Essentials	41	125.71	151.74
READ 180	36	72.92	94.80

**Summary**

The descriptive statistics, statistical testing, and an explanation of the results were included in Chapter 4. Four research questions and the testing of four hypotheses was addressed in this chapter. Chapter 5 includes a summary of the study, findings related to the literature, and the conclusions.

## Chapter 5

### Interpretation and Recommendations

Chapter 5 includes a summary of this study. It also includes an analysis of the findings and their relationship to the literature. Implications for action and recommendations for future research are included.

#### Study Summary

School districts across the nation are implementing RTI programs to help students become stronger readers. The focus of this study was to determine effective T3 interventions by evaluating the reading assessment data of middle school students who were placed in either a research-based T3 program or a non-research-based T3 program. An overview of the problem, purpose, research questions, methodology, and major findings of the study are covered in this section.

**Overview of the problem.** Many school districts are attempting to implement RTI programs to help students become stronger readers. Schools want to know if placing students in a T3 reading intervention program helps to increase students' reading comprehension skills. District X implemented one research-based T3 program and one non-research-based T3 program and was not aware of the impact the two programs had on students' STAR Reading Assessment scores or MAP ELA scores.

**Purpose statement and research questions.** The purpose of this study was to determine the effectiveness of T3 interventions at the middle school level by analyzing the extent that there was a difference in the level of MAP ELA proficiency or a difference in student growth on the STAR Reading Assessment when students were enrolled in a

research-based T3 program (READ 180) compared to a non-research-based T3 program (Reading Essentials). Four research questions were created to address these purposes.

**Review of the methodology.** This study was quantitative and used a quasi-experimental design. The two dependent variables used in this study were the change in STAR Reading scale scores from fall to winter, winter to spring, and fall to spring, and the MAP ELA scores for seventh-grade students during the 2015-2016 school year and seventh-grade students during the 2016-2017 school year. The independent variable was participation in a T3 reading intervention program. An independent samples *t* test was conducted for each hypothesis and sample means for student reading scores were then compared between the two T3 programs.

**Major findings.** The results from RQ1, RQ2, and RQ3 yielded no statistically significant findings. There was no major difference in the student achievement between seventh graders who participated in the READ 180 program and those who participated in District X's Reading Essentials program based on students' MAP ELA assessment scores and STAR Reading Assessment growth from fall to winter and winter to spring. The results from RQ4 indicated a marginally significant difference in student achievement between seventh graders who participated in the READ 180 program and those who participated in District X's Reading Essentials program on the STAR Reading Assessment growth from fall to spring. Students who were enrolled in District X's Reading Essentials program tended to make slightly larger gains on their STAR Reading Assessment from fall to spring than students who were enrolled in the READ 180 program.

## **Findings Related to the Literature**

In the review of the literature, the researcher collected studies related to the effectiveness of T3 reading intervention programs and their impact on students' reading comprehension skills. In the current study, the results indicated there were some gains made by students in the READ 180 program and some gains made by students in the Reading Essentials program. However, when student results from the two T3 programs were compared, there was not a statistically significant difference.

The findings of this study support the research related to READ 180 and student reading comprehension scores. Scholastic Research (2016) found students across multiple grade levels in the Cypress, Texas school district showed an increase in reading proficiency after using the program. The What Works Clearing House (2016) also stated that the READ 180 program was shown to have increased students' general literacy achievement. Slight growth was observed as measured by the STAR Reading Assessment for students placed in the READ 180 program but not a statistically significant amount when compared to students in the Reading Essentials program. Similarly, Parker et al. (2013) found evidence that neither READ 180 nor Voyager Journeys III produced conclusive evidence to support either one of the programs.

Research can be found regarding the importance of T3 programs utilizing expert teachers working with struggling readers. Allington (2013) stated the importance of having certified reading teachers working with students to improve reading skills at the T3 level and not simply placing a paraprofessional with them. Mitchell et al. (2012) agreed stating that explicit instruction with a smaller group of students and a teacher with greater expertise is ideal. In the current study, District X's Reading Essentials program

contained certified reading teachers with content expertise working with smaller groups of children. Students were placed with an expert reading instructor and provided with explicit instruction while working alongside a small group of their peers. However, of the four research questions, only RQ4 resulted in a marginally significant difference between the growth of students' STAR Reading scale scores from fall to spring when the two T3 reading programs were compared. In the current study, students placed in the Reading Essentials program made gains, but there was not a statistically significant difference in the amount of gains made when compared to the scores of students placed in the READ 180 program.

The research related to the role of independent and small-group reading time in an effective T3 program was consistent. Cunningham & Stanovich (1997) stated that prioritizing time for reading and exposing students to various texts can result in growth in reading comprehension. Allington (2013) agreed that to foster reading development, time must be set aside for struggling readers to read in both small group instruction and independently. In the current study, both READ 180 and District X's Reading Essentials program incorporated the component of small group instruction and independent reading time. Students in both programs made gains in their reading comprehension scores on the MAP ELA assessment and STAR Reading Assessment. Although there was not a statistically significant difference when the scale scores were compared, students in both programs did increase their reading skills.

## Conclusions

This section outlines conclusions drawn from the study on the effectiveness of a research-based T3 program and a non-research-based T3 program on student reading comprehension. The findings from the current study are significant to school leaders, as they could be used to improve or make decisions regarding future T3 programs at the middle school level. Implications for action, recommendations for future research, and concluding remarks are included in this section.

**Implications for action.** As districts continue to work to meet the needs of their struggling readers specifically at the middle and high school level, it becomes important to evaluate how districts are implementing RTI programs and the effectiveness of those programs based on student test scores. The results of the current study indicated that although gains were made by students who were placed in T3 programs in the area of reading comprehension, there was not a meaningful difference in the gains that were made based on the program where the student was placed.

Another result of this study was that there was a marginally significant difference in the growth students in the Reading Essentials program made from fall to spring based on the STAR Reading Assessment. A specific area of action may be to evaluate the specific components of District X's Reading Essentials program. Also, District X may want to compare the results of a second year implementation of the Reading Essentials program to the first year. District X could also review how other school districts have implemented RTI at the middle school and high school level and the impact those programs had on students' reading comprehension skills.



**Recommendations for future research.** The purpose of this study was to determine the effectiveness of T3 interventions at the middle school level by analyzing the extent that there was a difference in the level of MAP ELA proficiency and the amount of student growth on the STAR Reading Assessment when students were enrolled in a research-based T3 program compared to a non-research-based T3 program. The study was limited to one sample of students in one middle school in District X. Multiple recommendations can be made to expand the research of this study.

The first recommendation that could be made is to expand the study to include multiple grade levels or schools utilizing the same T3 programs. Expanding the study would allow more data to be collected based on student scores. A better analysis of the interventions being used could be conducted with a larger sample size.

The second recommendation that could be made is to include a qualitative component in the study. Collecting student or teacher feedback through a survey or individual interviews could provide insight into student or teacher perception of the T3 programs. The individuals involved in the program would be able to specifically identify what they feel is meeting their needs and what is not.

The third recommendation that could be made is to expand the study over multiple years and compare data from years of implementation. It can be difficult to make conclusions about a program or intervention based on one year of integration. Selecting one T3 intervention program and collecting data on it over time could provide a more thorough analysis regarding the effectiveness of it.

The fourth recommendation that could be made is to collect data on the professional development that is being provided to teachers utilizing the T3 programs.

Tracking the fidelity and implementation of the programs would offer insight into the integration processes and teacher knowledge and comfort with the program. Quantitative and qualitative data could be collected based on teacher perceptions.

**Concluding remarks.** The results of this study are similar to some of the results of related studies devoted to analyzing the effectiveness of RTI programs and their impact on students' reading comprehension skills. This study contributes to the research already conducted on the effectiveness of RTI programs by comparing a research-based RTI program to a non-research-based RTI program at the middle school level. As districts search to provide struggling readers with an effective T3 program at the middle level, programs are being implemented without evaluation of the resulting reading scores of the students placed in the program. Providing middle school students who are multiple grade levels below their peers in reading comprehension with the most effective intervention program is key to helping them to be successful in middle school, high school, and beyond. To continuously improve and meet the needs of struggling readers, additional studies such as this one should be conducted to identify the most effective and efficient T3 intervention programs for middle school learners.

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## Appendices

**Appendix A: Baker University IRB Proposal for Research Approval Letter**



*Baker University Institutional Review Board*

March 6<sup>th</sup>, 2018

Dear Larry Smith and Dennis King,

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

Please be aware of the following:

1. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
2. Notify the IRB about any new investigators not named in original application.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents of the research activity.
4. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
5. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts are requested for IRB as part of the project record.

Please inform this Committee or myself when this project is terminated or completed. As noted above, you must also provide IRB with an annual status report and receive approval for maintaining your status. If you have any questions, please contact me at [npoell@bakeru.edu](mailto:npoell@bakeru.edu) or 785.594.4582.

Sincerely,

Nathan Poell, MA  
Chair, Baker University IRB

Baker University IRB Committee  
Scott Crenshaw  
Erin Morris, PhD  
Jamin Perry, PhD  
Susan Rogers, PhD

**Appendix B: District X Research Permission Approval Letter**

April 25, 2018

Dear Mr. Smith:

Per [REDACTED] District Board Policy, external agencies or individuals desiring to conduct research studies involving either students or staff members during the school day must submit a written prospectus to the Superintendent, or designee, for approval prior to initiation of the study. To be approved, all such research proposals must demonstrate that the projected findings will have value to either the District as a whole or to a unit within the District, and not be unduly disruptive or time consuming to the normal educational process.

The [REDACTED] District recognizes the importance of research as a means of improving the instructional program for the District's students and also recognizes the need to monitor and control the amount of time and energy expended by both staff and students on research projects.

I have had the opportunity to review the prospectus for the research project entitled *The Elements of an Effective Response to Intervention Program and its Impact on Middle School Reading Comprehension Scores* as well as speak to the principal at the school regarding the project. It is my pleasure to approve the project *The Elements of an Effective Response to Intervention Program and its Impact on Middle School Reading Comprehension Scores* and the use of relevant [REDACTED] District data, classrooms and students within the project. I find the project to have value to the district, support the goals of the district, and not be unduly disruptive or time consuming to the educational process.

Please contact me if you have any questions.

Cordially,

[REDACTED]

[REDACTED]

Executive Director of Quality and Evaluation  
[REDACTED] District