

University of Memphis

University of Memphis Digital Commons

Electronic Theses and Dissertations

2019

An Analysis of Principals' Perceptions of Their Levels of Response to Instruction and Intervention

Kathryn King Redditt

Follow this and additional works at: <https://digitalcommons.memphis.edu/etd>

Recommended Citation

Redditt, Kathryn King, "An Analysis of Principals' Perceptions of Their Levels of Response to Instruction and Intervention" (2019). *Electronic Theses and Dissertations*. 2733.

<https://digitalcommons.memphis.edu/etd/2733>

This Dissertation is brought to you for free and open access by University of Memphis Digital Commons. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of University of Memphis Digital Commons. For more information, please contact khggerty@memphis.edu.

AN ANALYSIS OF PRINCIPALS' PERCEPTIONS OF THEIR LEVELS OF RESPONSE TO
INSTRUCTION AND INTERVENTION

by

Kathryn King Redditt

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Education

Major: Leadership

The University of Memphis

August 2019

Copyright© 2019 Kathryn King Redditt

All rights reserved

DEDICATION

Philippians 4:13, *“I can do all things through Christ who strengthens me”*.

First I would like to acknowledge and dedicate this to God, my lord and savior. He has carried me through the peaks and the valleys of life as well as this program.

To my husband Robert I give special thanks for always being there and believing in me. Without your love and faith, I would not be here. You have always pushed me to reach higher.

To my family and especially my wonderful daughter Laura, I thank you for your support and understanding through this process. Your patience, encouragement, and love means so much. I am so grateful to my parents for raising me to value education. As I attain my goal, it is with the hope that I have set an example that Laura will follow.

To my friend Kristin, your support and encouragement means more than I can ever put into words. You have been there for me all of the time, and often in strange hours of the night when I was frustrated. I know that I will never be able to repay you for the friend that you have been to me.

“But they that wait upon the LORD shall renew their strength; they shall mount up with wings as eagles; they shall run, and not be weary; and they shall walk, and not faint.”

Isaiah 40:31

ACKNOWLEDGEMENTS

To all of my teachers from elementary to high school, I thank you for all that you taught me. Without the guidance of many outstanding teachers and principals in my formative years this would not be possible.

To Dr. Boudreaux, I thank you so much for everything you have taught me through this journey and for encouraging me to never give up. You have stretched me and reminded me that I can do this.

To Dr. Hopper, I appreciate everything that you have done and for being there through it all. Your guidance of the program is essential, and you are an outstanding team leader.

To my Beta cohort, we have laughed, cried, and screamed together and your support has taken me through to the end. I value all of you and love you.

My Committee and Professors:

Dr. Mary Boudreaux, Chair and Major Professor

Dr. Donald Hopper

Dr. Eric Platt

Dr. Donna Menke

Dr. Charisse Gulosino

Dr. Leigh Harrell-Williams

Dr. Lou Gamble

Dr. James Mitchell

Dr. Timothy Fite

ABSTRACT

Redditt, Kathryn Ed.D. The University of Memphis. August 2019. An Analysis of Principals' Perceptions of Their Levels of Implementation of RTI². Major Professor: Mary K. Boudreaux, Ed.D.

Recent resounding dialogue surrounding school improvement has led to reform initiatives including Response to Instruction and Intervention (RTI²). Although all 50 states have implemented some form of an RTI model, Tennessee's state-wide framework to address struggling learners has placed us at the forefront of educational reform.

The Response to Instruction and Intervention (RTI²) initiative in Tennessee was implemented as a framework for teaching and learning to ensure success for all learners through a model of high expectations and supports for students. The lack of research surrounding the perceptions of principals regarding RTI² in their respective schools and districts has created a gap of knowledge. To avoid the impediment of a lack of fidelity to the RTI² framework this study sought to add to the limited research and analyze current practices in 5 municipal districts.

This quantitative study utilizes survey research as a secondary analysis of the RTI² implementation in 5 municipal school districts. Previously published data including responses to questions on 5 constructs of RTI² from the Tennessee Educator Survey and demographic data from the Tennessee School District Report Card were investigated. The study sought to answer two overarching questions surrounding the school districts' and school principals' biggest successes and continued challenges. The data was analyzed through four research questions using a Friedman rank sum test, T-test, Shapiro-Wilk, linear regressions, and a multiple regression.

TABLE OF CONTENTS

Chapter	Page
List of Tables	viii
List of Figures	x
1. Introduction	1
Background	4
Statement of the Problem	9
Purpose of the Study	10
Research Questions and Hypotheses	12
Theoretical Framework	14
Nature of the Study	15
Definition of Terms	16
Assumptions	19
Scope and Delimitations	19
Limitations	20
Significance of the Study	21
Summary	23
2 Literature Review	24
Theoretical Foundation	24
Instruction in General Education	28
Data-Based Learning Organization	29
Resources for all Students	30
Family Engagement Through Partnerships	30
All Personnel Participate	31
Literature Review	32
Legislative Roots of RTI	32
Response to Intervention Model	34
Response to Instruction and Intervention (RTI ²)	36
Essential Components for RTI and RTI ²	36
Tier I Core Instruction	36
Individual Needs of Students	38
Supports for Students	38
Tracking Student Progress	39
Skills Based Intervention	41
Communication and Collaboration	43
Fidelity Instruments	45
Major Themes in The Literature	48
Gap in the Research	49
Summary	49

3	Methodology	51
	Research Design and Rationale	52
	Population	53
	Sampling and Sampling Procedures	53
	Procedures for Recruitment, Participation, and Data Collection	56
	Instrumentation and Operationalization of Constructs	57
	Data Analysis	61
	Threats to Validity	63
	Ethical Procedures	64
	Summary	64
4	Results	66
	Introduction	66
	Data Collection	68
	Results	70
	Summary	90
5	Discussion, Conclusions, and Recommendations	93
	Purpose and Nature of the Study	93
	Interpretation of the Findings	96
	Further Limitations of the Study	99
	Recommendations	100
	Implications	102
	Conclusion	105
	References	107

LIST OF TABLES

Table	Page
1. Alignment of SAM Model and Tennessee Educator Survey RTI ² Constructs	25
2. Friedman Rank Sum Test	71
3. Pairwise Comparisons for the Mean Ranks of RTI ² Constructs	72
4. Summary of one-sample t-test of PPI scores among districts	73
5. Test of Normality (Shapiro-Wilk)	73
6. Descriptive Statistics of PPI Score	74
7. Linear model summary between district PPI and TVAAS scores	75
8. Results of ANOVA – PPI and TVAAS Scores	76
9. Coefficients of Composite TVAAS Score	77
10. Linear model summary between district PPI and Disability Status	78
11. Results of ANOVA – PPI and Disability Status	79
12. Coefficients of Composite Economically Disadvantaged Status	80
13. Linear model summary between district PPI and Economically Disadvantaged Status	81
14. Results of ANOVA – PPI and Economically Disadvantaged Status	82
15. Coefficients of Composite Economically Disadvantaged Status	83
16. Linear model summary between district PPI with TVAAS and Economically Disadvantaged Status	85
17. Coefficients of Composite PPI with TVAAS and Economically Disadvantaged	86
18. ANOVA Results for Regression Model	88

LIST OF TABLES

19. Person Correlation between TVAAS and Economically Disadvantaged variables	89
---	----

LIST OF FIGURES

1. QQ Plot of residuals for PPI compared to a) TVAAS, 84
b) Percent Disability and c) Percent Economically Disadvantaged
2. The QQ plot of residuals between the district PPI scores with 87
TVAAS and Economically Disadvantaged status variables
3. Correlation Plot between the TVAAS and Economic Disadvantaged 90
variables

Chapter 1

The Introduction

In an effort to examine the quality of education in the United States (US), the National Commission on Excellence in Education (NCEE) communicated the results of their analysis in a 1983 report labeled *A Nation at Risk* (NCEE, 1983). The findings revealed eroding expectations and achievement, and eighteen years later the angst over those findings was still present when the No Child Left Behind Act (NCLB) of 2001 became law (Darling-Hammond, 2006; Maier, 2016; Patterson, 2016). The purpose of NCLB was to increase student achievement by stipulating the use of effective, research-based programs, strategies, and systems to prevent and remediate reading problems (USDOE, 2001).

Additionally, a system of tracking student progress was included along with the mandate that every child receive instruction from a highly-qualified teacher. In 2009, leaders from 48 states, two territories, and the District of Columbia recognized the importance of real-world learning goals and successively began a state-led effort to develop a set of rigorous standards that eliminated the inconsistent proficiency standards that existed among the states. These standards became known as the Common Core State Standards (CCSS).

Educational policymakers have participated in an increasingly audible policy discourse for the embrace of educational practices that provide high-quality instruction along with interventions for struggling learners, particularly in the area of literacy (Sansosti, Noltemeyer, & Goss, 2010). Even presidents, as well as special interest groups have advocated for implementation of reform initiatives to increase the reading ability of our nation's students (Ravitch, 2000; Young, Shepley, and Song, 2010). Therefore, it comes as no surprise that the

present-day initiatives and policies designed to address learning issues and close the achievement gap have evolved from events that highlighted a need for change.

Subsequent to the NCLB legislation in 2004, the Individuals with Disabilities Education Act (IDEA) was reauthorized and called for the states to realign the identification process for learning disabilities. These federal legislative initiatives centralized on ensuring that all students are learning at high levels and tracking a student's progress through documenting their response to effective regular education instruction (Palencher & Boyer, 2008, Prater, 2017). The model became known as responsiveness to intervention (RTI) (Rinaldi, Higgins Averill, & Stuart, 2016; Bineham, Shelby, Pazey, & Yates, 2014; Fuchs & Fuchs, 2006). One unique interjection into IDEA was that it allowed states and local districts the opportunity to choose one of the various RTI models in existence as the method of qualification for a specific learning disability. That is, states were afforded an option to utilize the RTI model providing evidence of a student's response to scientific, research-based interventions as opposed to the traditional discrepancy model of waiting until there is a discrepancy between their score on a standardized test and their IQ score (Green & Barclay, 2017).

Although there are several RTI models and procedures in use by various states, the tenets of the programs are similar including: focus on individualized needs of all students, interventions addressing skill deficits, tracking student progress, and attention to high quality core instruction (Sansosti et al., 2010). For example, nationally, interventions are delivered in increasing intensity across a level of tiers. While some states have a system of four tiers, the most common model of RTI includes a system of three tiers, referred to as Tier I, Tier II, and Tier III (Fuchs, Fuchs, & Compton, 2012). For example, Tier I interventions are implemented in the core instruction, and Tier II and Tier III interventions are implemented outside the core instruction with increasing

intensity (Buckner, 2013; Murakami-Ramalho & Wilcox, 2012). The core instruction includes scientifically-based core curriculum and instruction supported by research, while interventions may include small-group skills-based instruction at Tier II and Tier III intensive, individual interventions.

In 2010, research conducted by Fuchs, Fuchs, & Stecker (2010) found that 43 out of 50 states have implemented some form of the RTI model to address instructional quality and increase students' chance of school success. The findings also indicated that the lack of a national RTI framework creates varied models across the nation, with notable differences being found even at the district level. Today, all 50 states have implemented some form of an RTI model, though variations still abound among the states (Savitz, Allington, & Wilkins, 2018).

The early part of the 21st century is reminiscent of a political, educational climate riveted by high-stakes accountability efforts. And, although in 2019, No Child Left Behind (2001) is no longer a federal mandate, the remnants of standards-based initiatives continue to impact and influence curriculum decisions, including the implementation of models such as RTI. With the recent enactment of Every Student Succeeds Act (ESSA) by President Obama in 2015, the states were given latitude to set goals, determine accountability, and make plans for how to intervene in their lowest-performing schools. Since ESSA included the ability for states to apply for a waiver and develop their own plan, Tennessee applied for and obtained a waiver, and thus the Tennessee Succeeds plan was developed.

As the country enters the second half of the 21st century, there is a shift to improve the climate of schools based upon an increasingly diverse mix of learners. Educational leaders continue to struggle in efforts of finding viable tools and approaches to address the challenges

facing public education that support academic excellence, achievement and instructional equity for all students (Buckner, 2013).

Background of the Study

The implementation of the RTI framework has altered the landscape of the educational system such that educators must pursue interventions and other avenues before testing a child for a potential learning disability (Maxwell & Cowan, 2015). Recent decades of educational reform including special education identification and increased accountability has led to significant changes in programs and approaches. The origins of RTI can be traced back to the early 80s when the National Research Council (NRC) examined procedures surrounding learning disabilities (Bender & Shores, 2007; Patterson, 2016; Preston, Wood, & Stecker, 2010). Consequently, the findings of this study by the NRC began the momentum for responsiveness to intervention. Indeed, the ongoing controversies surrounding special education over the years since the initial passage of IDEA in 1975 made an alternative model such as RTI inevitable (Greer, 2005).

Problems within both the general education and special education settings were identified in the 1990s (Martinez et al., 2006). The following problems were identified in this research: “(a) sharp contrast between general and special education service delivery; (b) lack of emphasis on prevention and early intervention; (c) limited weight given to the importance of research-based instruction and intervention; and (d) poor relationship between SLD [specific learning disability] identification and eligibility procedures and the interventions offered in special education” (Martínez et al., 2006, p. 2).

In the early 2000s the Office of Special Education Programs addressed the continuing controversies and convened stakeholders to conduct an analysis of the discrepancy model criteria

and subsequently, through this work alternative routes to identification were advanced including RTI (Bender & Shores, 2007; Vaughn & Fuchs, 2003; Werts, Lambert, & Carter, 2009). The issuance of the Common Ground Report in 2002 endorsed consensus statements surrounding identification which corresponded to the tenets of RTI, and thus the convergent findings of this and other initiatives set the stage for the increasingly widespread implementation of RTI.

When President Bush signed into law the reauthorization of IDEA in 2004, the result was the increased use of RTI within the mainstream of reform as a result of its mandate that states must consider a method of identification other than the discrepancy model (Millhouse-Pettis, 2011). Specifically, the law stated the states must permit “use of a process based on a child’s response to scientific, research-based intervention which has become known as RTI” (Martinez et al., 2006, p. 3).

Furthermore, the NCLB law of 2001 also advanced the use of RTI through four major principles of using evidence-based practices, monitoring student progress, implementing early reading intervention for at-risk students, and applying all principles to all children (Public Law 107-110, 2001; United States Department of Education, 2003). It distinguishes itself by specifying that scientifically-based interventions will be practiced to meet students’ needs and then through data-collection the results will be monitored (Kimmel, 2008). Moreover, the RTI framework was designed to provide schools a pathway to address student achievement for all students, and requires a team of educators and administrators working together toward the goals of the program (Fuchs & Fuchs, 2006; VanDerHeyden & Burns, 2010).

As RTI continued to develop, various models and versions were employed around the nation. Gresham, VanDerHeyden, and Witt (2005) summarized the philosophy of RTI as finding “which children need what services, delivered with how much intensity” (as cited in Barnes &

Harclacher, 2008). Widespread implementation continued with virtually every state actively encouraging schools to use an RTI approach which consists of a multi-tiered system of interventions that increase in intensity and duration as the student moves among the tiers (Dorn, Layton, & Smith, 2016). The most commonly used model consists of three tiers, referred to as Tier I, Tier II, and Tier III. Tier 1 is the core instruction delivered to all students. Tier II consists of small-group intervention for those students not meeting benchmark goals, and Tier III is one-on-one intervention for those students not responding to Tier II, and who need more intensive supports.

The urgency for instructional programs that address the needs of struggling learners has contributed to the development of the variety of Response to Intervention models in use throughout the states (McKinney & Snead, 2017). Although the various states have generated programs that include the use of scientifically-based instruction and interventions to address students' academic needs, Tennessee's RTI² framework introduces a daily dose of evidence-based Tier I core instruction (TDOE, 2014). This core instruction consists of high-quality, scientifically-based instruction delivered for at least 90 minutes daily, and subsequently Tier I is considered effective when at least 80% of students meet benchmark goals. The focus on prevention through quality Tier I instruction in Tennessee is a key aspect of RTI². It is a framework for teaching and learning surrounding positive outcomes for all Tennessee students to prepare them for success after high school (TDOE, 2014). RTI² encompasses the belief that all students deserve high-quality Tier I instruction, all students can benefit from intervention and enrichment, and all students can graduate from high school with the knowledge and skills to embark upon their chosen path in life. The Road to RTI² follows three principles: (1) **Leadership** at the state, district, and building level to ensure the success of ALL students

throughout the RTI² Framework is essential; (2) A **culture of collaboration** focusing on student achievement, for both struggling and advancing students, should include educators, families, and communities; and (3) RTI² is a **process focused on prevention** and early intervention that uses assessment data for instruction, intervention and transitions between tiers (TDOE, 2018). All schools in TN are required, through RTI², to utilize evidence-based practices, instructionally relevant assessments, data-based decision making, and effective professional development in order to ensure the success of all students (TDOE, 2018). RTI² in Tennessee consists of three levels, or tiers, of instruction and intervention directed by guiding principles.

When implementing school reforms like RTI², the principals' leadership is important for successful academic outcomes (TERA, 2018). School administrators responsible for implementing educational programs make daily decisions that impact and influence the culture and climate of the organization. Zola (2011) references the work of Bender and Shores (2007), suggesting that the principal has a variety of roles in the implementation of a program which includes communicator, initiator, motivator, and facilitator. The vision and implementation of such school-wide RTI programs are contingent upon the role of the school leader and his or her ability to become a catalyst for change (Fullan, 2014; Sansosti et al., 2010) as well as willingness to gain support in the efforts toward reform of the school climate and culture.

Patterson (2016) concluded that one of the most central parts of the RTI² program is leadership. The author contends that leadership begins with the principal and works its way down (top-down approach). However, leadership is distributive and shared in other examples. In a study by Kimmel (2008), the elements of teacher buy-in, resources, principal leadership, and professional development impacted RTI implementation in a positive manner. A leader who strives to implement an RTI program which positively impacts student achievement must model

data-based decisions, empower and build trust with stakeholders, and dedicate themselves to making sure that all students achieve. Such implementation is relevant to both lens of this quantitative study, Green's (2010) postulates, and the Schoolwide Applications Model (SAM, 2009).

Green (2010) postulates that the role of a 21st century leader focuses on purpose, process, and outcome. In acquiring a purpose or vision, an analysis of each situation must be carried out by the leader. During such, the processes utilized by the leader provides direction (route) toward meeting the desired outcomes. Within the process of achieving organizational and program goals, a clear method, procedure, and technique must be identified (Green, 2010). In the case of implementing components of RTI², old behaviors and techniques will need to be abandoned or enhanced to meet the needs of the varied student population. To be a discerning and effective 21st century transformative leader, principals will need to recognize when the skills of an individual or group fall short of those competencies needed to enhance the academic achievement of students, particularly for underserved populations (Green, 2010).

The desired outcome of the RTI² program is to enhance student achievement for all students, and especially for those who are struggling. In Green's work (2010), he posits that a shared vision must first be developed to achieve the desired outcome. When the leader begins with the end in mind, they can then internalize processes for use in achieving their purpose, thereby building a capacity to lead (Green, 2010).

School improvement and student achievement are critical issues for today's education leaders and especially through the educational reform effort designed to address the needs of all learners (Swindlehurst et al., 2015). Unless the perceptions of principals surrounding the extent of RTI implementation are sought, improvements in implementation will not occur (Davis,

2018). Principals are responsible for setting the overall professional environment in which a change occurs within the school culture. According to the Georgia Leadership Institute for School Improvement (2015):

In order for a school to achieve and sustain high levels of success for students, the leader must be intentional, transparent, and strategic in developing, modeling and maintaining a strong culture. A strong culture is demonstrated through high expectations, purposeful engagement, and mutual trust of all stakeholders including students, staff and the community (p. 17).

Therefore, there is a strong need to capture the perceptions of principals' actions and behaviors surrounding the current status of implementing the RTI² framework within schools and school districts and to determine if school leaders are meeting the goals set forth by policymakers in the state department of education.

Statement of the Problem

Much of the past research and focus on school reform has centralized around RTI (Shepherd & Salembier, 2011). Of particular interest to researchers is the analysis of leadership practices that impact the program (Buckner, 2013). Implementing an RTI program necessitates that principals understand the elements of the program and the focus and leadership that is needed (Kozleski & Huber, 2010); however, much of the past research has focused on the tiers of RTI and program implementation (Gersten et al., 2009; Swindlehurst, 2015). Additionally, Cowan & Maxwell (2015) concluded in their research that the potential of RTI is great, but the shift to an RTI model must consider practitioners and school leadership for program success.

VanDerHeyden and Burns (2010) argue that "leadership models within RTI are not well articulated" (p. 103). Notwithstanding the few studies that analyze leadership within RTI, the

overall lack of research in this area may prove to be a large impediment to sustaining its success (VanDerHeyden & Burns, 2010). The failure to include the perceptions and opinions of those individuals who are tasked with implementing the initiative can negatively affect the long-term changes necessary for complete implementation of the framework.

To discern the causes of unsuccessful program implementation, the analysis of school leaders' perceptions of their school culture practices regarding communicating with stakeholders and developing buy-in from teachers within their schools can provide information to district leaders and others to provide supports needed to ensure program fidelity. It is with this understanding, the school-based practices of principals implementing models of RTI such as RTI², merits additional research.

Purpose of the Study

In response to meeting the federal mandate to implement an RTI model in schools, Tennessee developed Response to Instruction and Intervention (RTI²). Thus, the RTI² framework for learning became the sole method of identifying a student with a specific learning disability in Tennessee in July 2014 (TDOE, 2018). The guiding principles of RTI² include leadership and a culture of collaboration that, according to the RTI² framework, is essential to its success. Policymakers at the state level strongly advocated for RTI² and believed that if RTI² is successful, every child will be equipped with the skills to successfully embark upon their chosen path in life (TDOE, 2018).

The potential of meeting the needs of all learners and closing achievement gaps has become embodied into RTI². Although RTI² is promising, research has shown continued concern about implementation practices. Thus, even though the basic RTI model seems relatively straightforward, implementation of the process requires significant consideration and planning so

that it is reliable and done with fidelity (Bender & Shores, 2007). McInerney and Elledge's (2013) research findings agree that implementing RTI components with fidelity will effectively increase student learning. Additionally, studies have shown the understanding that school leadership is crucial to implementation of RTI (Buckner, 2013; Prewett et al., 2012).

Given the circumstance that RTI² is a relatively new initiative encapsulated within the state and national reform movement to increase the achievement of students who struggle academically, perceptions of principals surrounding the implementation of the framework warrant further research. Accordingly, the purpose of this study was to conduct an investigation surrounding school leaders' perceptions of their implementation of RTI² within their individual schools and collectively, districtwide.

This analysis utilized quantitative methodology in a non-experimental nature and secondary data analysis on archival principal data obtained through the Tennessee Department of Education. Data retrieved from principals' responses within five municipal school districts on the Tennessee Educator Survey will be analyzed. As part of school improvement efforts that explores school leaders' efficacy and student success, this quantitative study focuses on five specific implementation strands related to RTI². The study investigated the perceptions of school principals regarding their school improvement challenges and successes in implementing RTI². More specifically, the following five-strands (TDOE, 2016) required school principals to consider their school-wide implementation practices. The five strands read as:

1. RTI² interventions are in addition to core instruction.
2. RTI² is intended to address the individualized needs of all students, not just those who are behind.

3. Tier II and Tier III interventions provide students with skills-based learning opportunities.
4. Our school uses multiple data sources to track student progress and assign students to different tiers of intervention.
5. I feel comfortable explaining to parents/guardians why RTI² is being implemented.

Research Questions and Hypotheses

A quantitative study using secondary analysis survey design is appropriate for this study since the comparisons of principals in these municipal school districts will yield data surrounding the perceptions of RTI² implementation within their districts. That is, the level of agreement and concerns of leaders of schools. More specifically, the researcher aims to answer the following two overarching questions: (1) *What are school principals' and school districts' biggest successes in utilizing the RTI² framework to provide intervention for students?* and (2) *What are areas of the RTI² framework that school principals, individually and collectively, continue to struggle to address?*

To answer the aforementioned questions, the researcher devised six research questions involving district demographics and principals' perceptions of implementing the RTI² framework utilizing the five survey strands. The researcher utilized data from the Tennessee Educator Survey given every spring to all teachers and administrators in Tennessee. Deriving from the overall purpose of the study are the following research questions and hypotheses:

Research Question 1: Do significant differences in principals' perceptions exist between the five-strand framework of RTI²?

H1o: There is no statistically significant difference in the perception of principals between the five-strand framework of RTI².

H1a: There is a statistically significant difference in the perception of principals between the five-strand framework of RTI².

Research Question 2: Is the perception of implementing the five-strand framework of RTI² by principals influenced by the school district they belong to?

H2o: There is no statistically significant difference in the average perception of implementation by principals among the five school districts.

H2a: There is a statistically significant difference in the average perception of implementation by principals among the five school districts.

Research Question 3: Does district demographic criteria (such as TVAAS rating, percentage of direct disability status or socioeconomic status) influence the perception of RTI² implementation in principals?

H3o: No district demographic criteria affect principals' perceptions of RTI² implementation.

H3a: One or more district demographic criteria affect principals' perceptions of RTI² implementation.

Research Question 4: Does a combination of district demographics better predict the perception of RTI² implementation among school districts than a single demographic factor alone?

H4o: No district demographic criteria combine to predict the variance in perception of RTI² implementation among school districts better than a single factor.

H4a: A specific combination of district demographic criteria combine to predict the variance in perception of RTI² implementation among school districts better than a single factor.

The dependent variable in this study is the principals' perceptions, and the independent variables are the Tennessee Value-Added Assessment System (TVAAS) scores, the school district's disability demographic, the school district's economically disadvantaged demographic, the school district's ethnic diversity demographic, and the data from the survey. The research will contribute to a better understanding of the principals' concerns and successes regarding implementing RTI² within their schools. The findings will detail areas of needed improvement to ensure a nurturing school culture and climate and inform policymakers of much needed assistance for school district staff and school principals who are implementing the model.

Conceptual Framework

Tennessee has sought to emphasize prevention and early intervention using multiple sources of data through the RTI² program. The implementation of RTI² consequently signaled a major shift in practice for educators across the state. Martinez, Nellis, & Prendergast (2006) assert that strong building-level support must be evident in a paradigm shift like RTI. Accordingly, Marzano, Waters, & McNulty (2005) found that a strong correlation exists between student achievement and a goal-oriented action plan for success. For continued implementation and change as in RTI, an action-plan and frequent review must be enacted. In addition, the status of school leader's role in implementing innovation must be continually reviewed to monitor progress throughout the change process (Green, 2010).

Fullan (2005) declared that sustainability of any change process "requires improvement, adaptation, and collective problem-solving in the face of complex challenges that keep arising." The Schoolwide Applications Model (SAM, Sailor & Roger, 2009) is a structural school reform model that addresses the sustainability of RTI. SAM is a data-based RTI school improvement model directed by six guiding principles which are subsequently broken down into 15 constructs.

One characteristic of this model is its integration into the existing values and culture of the school (Sailor, 2009). SAM focuses on school culture as a critical variable in accomplishing systems change and allows schools to concentrate on what priorities to centralize on first. Its intent is to focus on academic achievement by replacing the fragmentation of supports within schools by means of an integrated RTI model (Haynes, 2012).

Sailor and Roger developed SAM in 2003 as an equity-based approach to school reform. It is an inclusionary model designed to increase academic achievement for all students through the general education program. Sailor and Roger (2005) theorized a model of general education support approach to coalesce all fragmented educational resources, supports, and services to benefit all students (Dunn, 2012). It is a data-based, collaborative, and standards-based model providing all students what they need to increase their academic achievement and is built upon an RTI framework (Dunn, 2012).

Nature of the Study

This study on principals' perceptions is quantitative, descriptive, and non-experimental while drawing upon existing data sources in a secondary analysis. The study will be conducted quantitatively because answering its research questions requires mathematical analysis of objectively defined variables. The descriptive nature of the study will seek to indicate general tendencies in the data and conduct a comparison of the variables (Cresswell, 2012). Additionally, the study is non-experimental in nature due to the absence of an intervention and a control group. Drawing upon existing data sources, the experimenter will work in a mode of inquiry commonly referred to as "analysis of secondary data" or more simply "secondary analysis" (Hakim, 1982).

The independent variables of the study are the principals' perceptions as reflected in TN Educator Survey, the districts' TVAAS scores, the districts' disability status, and the districts'

economically disadvantaged demographics as reflected in the TN School District Report Card. The dependent variable of the study is the level of implementation of RTI². The archival data collected for this study consists of the scores on the 2016 TN Educator Survey results as well as the TN School District Report Card. Variables in this study were analyzed using JASP (2018).

Definition of Terms

Core Instruction- The grade-level expectations and high-quality instruction using research-based practices provided to all students which is commonly referred to as Tier I (Haynes, 2012; TDOE, 2014).

Differentiated Instruction- “targeted instructional provided to meet the needs of students” (TDOE, 2018, p. 48).

Discrepancy Model- The process of referral for identification of a specific learning disability that includes a gap between a student’s achievement score and their score on a cognitive assessment to determine if there is a discrepancy (Bender & Shores, 2007; Jones, 2015).

Economically Disadvantaged- The student-based indicator that reflects the population of a school district’s students who reside in poverty (TN Report Card, 2019).

Ethnic Diversity- The student-based percentages of the composition of the particular school district according to racial ethnicity (TN Report Card, 2019).

Every Student Succeeds Act (ESSA)-The act that was signed into law in December 2015 and replaced the No Child Left Behind Act. This law grants more state decision-making authority and new flexibility for programs (TDOE, 2018).

Fidelity- “the extent to which the prescribed instruction or intervention plan is executed” (TDOE, 2018, p. 73).

Implementation-The extent to which the processes and the tenets of RTI² are being utilized in schools as outlined by the framework of the model (Keller-Margulis, 2012).

Individuals with Disabilities Education Act (IDEA)- A federal law that makes a free and appropriate public education available to eligible children with disabilities and ensures special education and related services (Green & Barclay, 2017).

Intervention- “support at the school level for students performing below grade-level expectations” (TDOE, 2018, p. 85).

No Child Left Behind (NCLB)- A federal law passed in 2001 that significantly increased the federal government’s role in holding schools and teachers accountable for the progress of all students. The law was a reauthorization of the Elementary and Secondary Education Act (ESEA) and required necessary skill assessments for all students at specific grade levels and had at heart a commitment to providing equal education to all students (U.S. Department of Education, 2001).

Principal Perception Index (PPI)- An index variable that was calculated by assigning each TN Educator Survey Likert response strongly disagree through strongly agree, a multiplier coefficient of 0-3. The multiplied values were divided by the maximum possible score each district could have obtained if every individual answered strongly agree for every question. This process created a single value for each district, the PPI, with a range of 0-1, where higher values indicate better principal perception of RTI² implementation based on their responses to the pertinent questions in the TN Educator Survey.

Professional Development- Ongoing training and support provided to staff to promote effective implementation of RTI² (TDOE, 2014).

Progress Monitoring- A form of evidence-based assessment practice given at consistent intervals used to determine if a student is benefitting from the intervention they are receiving (Fuchs & Fuchs, 2006; Hattie, 2009; Haynes, 2012).

Response to Intervention (RTI)- A model of scientifically validated instruction utilized by various states that involve increasingly intense layers of interventions aimed at students struggling to learn. This model involves monitoring a student's progress and adjusting instruction based on the response (Bender & Shores, 2007).

Response to Instruction and Intervention (RTI²)- Response to Instruction and Intervention is a framework for teaching and learning developed by Tennessee for implementation statewide. It utilizes a systematic process of three tiers of high-quality, differentiated instruction and additional interventions for struggling students. It is a tiered model spanning from general education to special education and involves instructional decisions based on frequent progress monitoring (TDOE, 2014).

Role of School Leader- In RTI² a school leader must articulate their vision for RTI² and its impact. They are responsible for ensuring the fidelity of the instruction and interventions in their school or district.

School Improvement- The focus of building on a school's and district's current successes and challenges to improve student achievement in the respective school which feeds into the overall school improvement for the state. It is the instructional processes, standards, and programs that seek to improve outcomes for all students.

Specific Learning Disability- A disorder in one or more psychological processes involved in learning and understanding that inhibits a student's ability to perform language or mathematical functions (Jones, 2015).

Students with Disabilities- The population of students in a school who have been identified as having special needs and who qualify for special education under the IDEA (Jones, 2015).

Tier II- The targeted interventions and additional instruction that is provided to students who are showing slight deficits in specific areas (Fuchs & Fuchs, 2006; Maier et al., 2016).

Tier III- The intensive interventions that are provided to those students who have significant needs and deficits. This intervention is provided individually or in small groups (TDOE, 2014).

Tiered model- A model of tiers that delineate levels of instructional interventions provided to students based on student skills and needs. The most common model is that of three tiers (Fuchs & Fuchs, 2006; Maier et al., 2016).

Tennessee Value-Added Assessment System (TVAAS)- A measure of the impact that schools have on their students' academic growth from year to year (TN Report Card, 2019).

Universal Screening- A brief assessment mechanism sometimes referred to as a benchmark, which is given three times a year to identify students who are struggling to learn the skills provided in the core instruction. It is predictive of future outcomes (Patterson, 2016; TDOE, 2014).

Wait to fail model- The commonly used term to describe learning disability identification that waits until a student underachieves on achievement tests before they are identified as having a specific learning disability (Green & Barclay, 2017; Reschley, Hosp, & Schmied, 2003).

Assumptions

This study utilizes data from the Tennessee Educator Survey along with the Tennessee School District Report Card and with the utilization of self-reported data is an assumption that the participants provided honest answers to the items in the survey. While it is typical for principals to delegate specific responsibilities in their building, the participation of the principals

in the implementation process of RTI² in their respective schools is an additional assumption. The continued use of the Response to Instruction and Intervention program state-wide is also assumed. The positive effect on school improvement and academic achievement is also assumed along with the improvement in implementation in these school districts.

Scope and Delimitations

The delimitations utilized by the researcher in this study were determined by a desire to gain a better understanding of the perceptions of principals in municipal districts having been in existence a relatively brief amount of time. The researcher used existing data from the TN Educator Survey for a purpose not intended in the original survey to allow for a view of five strands of RTI². The importance of the school leader's role in the implementation of any new policy or program is paramount to impact student achievement positively, and this led the researcher to limit the study to this sample. In 2012, one of the two school districts in the existing county of this study surrendered its charter which essentially merged that city school system into the county school district. Subsequently, in 2014 six municipalities separated from the county school district to form their school districts. Even though they have only been in existence since 2014, school districts A, B, C, and E are designated as advancing districts by the TDOE (2018), and District D is designated as satisfactory. District A has 2 reward schools, district B has 4, district C has 4, district D has none, and district E has 5 reward schools as designated by the TDOE (2018).

Additionally, in 2019 District A had one school named as a National Blue Ribbon School. The brief period of existence for these districts limits the amount of research data present. This lack of research and the period of the youth of the districts makes them excellent choices for this study. While all states have some tenets of RTI in place, fewer than 10% provide

guidelines for implementation (Arden et al., 2017). The limited number of states having models in place like RTI² makes our state model an excellent choice for this research.

The data being utilized is specific to principals in these five municipal districts and response to intervention and instruction. Furthermore, the results of this study will be specific to the administrators in these municipal districts.

Limitations

There are several limitations to be noted regarding this study. Cresswell (2014) observed that stated limitations assist the reader to compile a clearer picture of what the study means and how widely the results can be generalized. The distribution of the study was limited to the state of Tennessee and public school educators who responded to questions on the TN Educator Survey. It is possible that some educators chose not to participate in this survey or did not participate due to personal factors outside of their control.

Furthermore, survey data can be prone to error since participants may not reflect their true beliefs. An additional limitation is the participation of only five districts and the factor that not all principals in those districts participated in the survey prevent the results from being generalized to the entire state. The study is also limited to survey data and will not include dialogue from the participants.

The SAM model (Sailor and Roger, 2007) is used as only a conceptual framework for this study. As such, the conceptual framework is aligned with specific RTI² components assessed within the study. School districts within this study are not identified as SAM schools. Schools within this study are not identified as implementers of specific SAM approaches. The SAM model serves as a strong rationale for a problem-solving approach that is inclusive all of district stakeholders.

Frequently when new initiatives are begun the views of those individuals who are charged with implementing the change are not considered, and this can negatively impact the outcome (Sarason, 1996). The data being utilized is specific to principals in these five municipal districts and Response to Instruction and Intervention. Furthermore, the results of this study will be specific to the administrators in these municipal districts.

Significance of the Study

The significance of this study is of great importance as it contributes to the body of knowledge about principals' perceptions of the RTI² initiative. The study is a measurement of the perceptions of principals in five municipal school districts. The RTI initiative is a reasonably new reform effort and gained momentum in response to NCLB and *A Nation at Risk* (1983) which highlighted student achievement problems. During the rise of the national RTI movement states were initially evaluating whether to utilize an RTI framework and which model to adopt, but in recent years, questions about implementation have risen to the limelight (Regan, Berkeley, Hughes, & Brady, 2015).

Various researchers believe that implementation with fidelity is critical for RTI to be successful (Cowan & Maxwell, 2015; Martinez, Nellis, & Prendergast, 2006). Indeed, researchers such as Berkeley (2009) found that data about implementation and fidelity to the tenets of the program was generally unavailable, even for models in place for several years. Other researchers have concluded that even though the program may have potential, attempts to shift to RTI can be ineffective without consideration for the school systemic features (as cited in Cowan & Maxwell, 2015). Additionally, past research into various RTI models suggests that the initial years of implementation are particularly challenging (Regan et al., 2015).

Research indicates that a leader's role is central to implementing and sustaining a reform effort such as RTI². The work of Sansosti et al., (2010) espoused that principals are a catalyst for change in buildings and as such are a major component of RTI. Additionally, Marzano, Waters, and McNulty (2005) concluded that leadership is thought to be a vital aspect of the successful functioning of a school, which can also apply to the RTI program in schools. Bender and Shores (2007) reported that a school leader is responsible for several aspects of RTI in their school including initiating, communicating, facilitating, and motivating.

Past research on principals' perceptions of the implementation of RTI² in their schools is limited, and this research will assist in filling such a gap in the literature. This research will provide information to school leaders to inform decisions related to professional development for teachers in schools who utilize RTI² frameworks.

Summary

This chapter provided an overview of the proposed quantitative study whose purpose is to conduct an investigation surrounding district educational leaders' perceptions of the implementation of RTI² within their schools and districts. The significance of the study is to provide recent research on the implementation of RTI² in five municipal districts and the principals' perceptions for overall school improvement and student achievement. This study will address the gap in knowledge regarding principals' perceptions of implementation, specifically for the TN RTI² program. Chapter 2 will provide an in-depth literature review of previous research, and Chapter 3 will discuss the methodology regarding how the study will be conducted.

Chapter 2

Literature Review

This chapter will provide a discussion of the recent research studies conducted on RTI and the findings of these studies. The chapter will begin with a review of the theoretical foundation, the Schoolwide Application Model along with five criteria of SAM as aligned to the five constructs of RTI from the Tennessee Educator Survey. The chapter will then continue with a review of the legislative roots of RTI followed by a discussion of the RTI model and its background. The chapter continues with a review of the components and background of the Tennessee RTI² model. The chapter concludes with research surrounding the implementation of RTI², RTI² interventions and the RTI² components of skills-based instruction, and communication and collaboration. A summary of the chapter finalizes the section.

Conceptual Foundation

In the Schoolwide Applications Model (SAM), Sailor (2009) asserts that sustainability of the RTI reform occurs through what he refers to as enculturation of the program. Schools are considered to have reached the phase of enculturation when the RTI program has been fully implemented with fidelity and has become a routine part of the school program.

As previously mentioned in Chapter 1, SAM is built upon RTI and has guiding principles and tenets that align with RTI². Given education's current emphasis on accountability, it is essential to research reform models focused on achievement for all students. The use of demographic data, achievement data, and principals' perceptions of implementation in this study further align with the SAM goal of increased achievement focusing on all students and serves as a rationale for this choice. Sailor (2009) refers to SAM when he says that "it offers schools a set of processes to enable them to accomplish the systems change transformation at their own pace

(p. 139).” The focus on interventions, fidelity, data-driven, resources for all students, family communication, and the fidelity of implementation estimator further support the choice of this foundation.

SAM is an equity-based, inclusive RTI approach, and consequently relies on instructional differentiation and supports to allow all students access to the curriculum. One aspect of SAM that Sailor (2009) emphasizes is fidelity of implementation. Keller-Margulis (2012) agreed with Sailor (2009) that rigorous fidelity monitoring efforts must occur for improvement in practice to occur. Efforts to monitor the SAM criteria are accomplished through the SAM analysis tool similar to efforts to gauge principals’ perceptions of RTI² as an implementation fidelity tool for program assessment through the Tennessee Teacher Survey.

The 15 criteria of SAM can inform district and other state stakeholders regarding principals’ implementation of the RTI² framework within their schools. More specifically, SAM provides all stakeholders with feedback in multiple areas regarding elements of school culture and school improvement such as teacher buy-in, meeting targeted goals, identifying performance obstacles and engaging others in the leadership effort. The 15 SAM criteria are aligned in Table 1 with the five RTI² constructs based upon the Tennessee Educator Survey.

Table 1

Alignment of SAM Model and Tennessee Educator Survey RTI² Constructs

RTI² interventions are in addition to core instruction
<ol style="list-style-type: none"> 1. All instruction is guided by General Education. 2. All students are taught in accordance with the general curriculum. 3. The school effectively utilizes general education students in the instruction of students in need of support in all instructional environments.
RTI² is intended to address the individualized needs of all students, not just those who are behind.
<ol style="list-style-type: none"> 4. All school resources are configured to benefit all students. 5. The school serves all students.

Table 1 (Continued)

<p style="text-align: center;">Tier II and Tier III interventions provide students with skills-based learning opportunities.</p>
<ol style="list-style-type: none">6. School Proactively addresses social development and citizenship.7. The school has an active, schoolwide Positive Behavior Support (SWPBS) program operating at all three levels.8. All personnel at the school participate in the teacher/learning processes and are valued for their respective contributions to pupil academic and social outcomes.
<p style="text-align: center;">Our school uses multiple data sources to track student progress and assign students to different tiers of intervention.</p>
<ol style="list-style-type: none">9. School is a data-based learning organization.10. The school enjoys district support for undertaking the extensive systems-change activities11. The school is a data-driven, collaborative decision-making, learning organization with all major functions guided by team process.12. School personnel use a uniform, non-categorical lexicon to describe both personnel and teaching/learning functions.
<p style="text-align: center;">I feel comfortable explaining to parents/guardians why RTI² is being implemented.</p>
<ol style="list-style-type: none">13. School has open boundaries in relation to its families and its community.14. The school has a working partnership with families of students who attend the schools.15. The school has working partnership with its community businesses and service providers.

The critical features of criteria 1, 2, and 3 from the chart above address instruction in the general education environment. Sailor and Roger (2005) expound upon these features to posit that all general education teachers are the chief agent of the student's education with assistance from others including general education students. According to Choi et al. (2017), one guiding principle of SAM is that general education guides all instruction while specialists work with the primary teacher to provide individualized supports and small group instruction. These supports and small group instruction align with the construct and feature of RTI² in which individualized supports are provided through Tier II and Tier III instruction outside of the Tier I core learning. Gardenhour (2016) outlines the RTI² feature encompassing additional intensive instruction in Tiers II and III, which support the general education instruction.

The SAM critical features of criteria 4 and 5 address the servicing of all students by the school along with the configuration of resources by the Site Leadership Team (SLT) to benefit all students. According to Haynes (2012), SAM is intended to replace the fragmentation of resources and supports within the school and is likewise guided and reviewed by the SLT who track progress in implementation. Consequently, the Site Leadership Team in SAM aligns and supports the RTI² School Leadership Team that reviews and makes decisions regarding RTI² in the school. In addition to other responsibilities, the team monitors the progress of RTI² and subsequently the practice of focusing on the needs of all students (TDOE, 2014).

Critical features of criteria 6, 7, and 8 address the social and behavioral development of students, which is facilitated through the participation of all staff who are valued for their contributions to academic and social outcomes (Sailor, 2009). Furthermore, the TN Educator Survey construct that addresses Tier II and Tier III interventions outline the instruction of students in skills-based learning. Dunn (2012) posits that proactive approaches to providing students the behavioral and social skills necessary will increase their academic achievement. The common schoolwide approach to providing behavioral and social interventions in SAM enables students who receive Tier II and Tier III interventions the support needed to increase their achievement.

The SAM critical features of criteria 9, 10, 11, and 12 outline the school as a collective data-driven learning organization guided by a teamwork approach. The district fully supports SAM by the district, and the teachers use a uniform lexicon to describe teaching and learning functions. Additionally, SAM schools utilize data to describe teaching and learning functions to evaluate overall progress in the systems change process (Sailor, 2009). They track data over repeated assessments using the SAM assessment tool with the support of the district through this

process (Sailor, 2009). This process of assessment and tracking of data aligns with the assessments and data tracking through RTI². The TN Educator Survey construct of the utilization of multiple data sources to assign students to tiers of instruction can be informed and supported by using the SAM data.

The last TN Educator Survey construct relates to communication with parents and stakeholders to explain RTI² and why it is being implemented. The SAM critical features 13, 14, and 15 are associated with working partnerships with parents of students as well as community businesses and service providers. As well as these partnerships with families, the school must develop clear boundaries to go beyond the traditional relationships in order to actively engage families and businesses (Choi et al., 2017). SAM schools implementing this reform model must continue to progress toward engaging the constituents in school life (Sailor & Roger, 2005). The engagement in school life with SAM supports and aligns to the communication in RTI². Schilling (2014) referred to communication and collaboration as an integral part of an effective RTI program. Schools are encouraged to engage parents in discussions about the student's data as early as in Tier I instruction, and they should be a more integral part of their child's data meetings as time progresses (TDOE, 2014).

Instruction in General Education. SAM is constructed of 6 guiding principles and 15 critical features. The first critical feature of SAM is the exemplar that the general education guides all learning. This feature aligns to the TN Educator Survey RTI² construct that all RTI² interventions are in addition to the core instruction. As an integrated model, one of the critical tenets of SAM is that learning is standards-based and is guided by the district's framework for learning (Sailor & Roger, 2005). Likewise, RTI² is a framework in which the foundation lies in quality core instruction at the Tier I level (McInerney & Elledge, 2013). The heart of RTI² is a

model promoting general education and special education connections utilizing high-quality, scientifically research-based instruction (TDOE, 2014).

According to Sailor (2009), SAM encompasses features of the universal design for learning in which the goal is for all students to engage the general education curriculum. Additionally, McInerney & Elledge (2013) postulate that the RTI curriculum framework should incorporate concepts of universal design for learning so that all students have access to the general education curriculum. Another feature of SAM is the incorporation of RTI characteristics through the screening of students and provision of interventions outside of the general instruction (Dunn, 2012). This critical feature has a direct association with the first construct of the TN Educator Survey RTI² questions.

Data-Based Learning Organization. Another critical feature of SAM consists of the school as a data-driven, collaborative learning organization. The TN Educator Survey RTI² construct describing the utilization of multiple data sources to track progress and assign students to tiers of instruction aligns with this tenet of SAM and can be compared to that aspect of the model. The utilization of data to make placement and intervention decisions is a guiding principle of the RTI² framework; and consequently, assessment is used to respond to students' needs in order to accelerate learning (Wixson & Valencia, 2011).

In SAM, a site leadership team analyzes data and plans for specific interventions according to priorities (Sailor & Roger, 2005). One crucial feature of RTI² is the development of school RTI² teams that meet to analyze data, measure effectiveness, and check progress (TDOE, 2014). Students not making progress will be considered for adjustments. According to Martinez et al., (2006), measuring each student's RTI² interventions to make data decisions is a critical goal of the framework. Accordingly, various student data is collected and analyzed in SAM and

thus allows teaching staff to make decisions (Choi, Meisenheimer, McCart, & Sailor, 2005).

Regan et al., (2015) sums it up when they posit that data assists in making timely instructional decisions.

Resources for All Students. A third critical feature of SAM is that all school resources are configured to benefit all students, and correspondingly this feature of SAM aligns with the TN Educator Survey construct that RTI² addresses the individual needs of all students, not just those who are behind. One goal of SAM is to overcome the barriers to full inclusion in all events (Sailor & Roger, 2005). Reorganization of services to assure that all students receive the support they need to be successful is associated with this goal and can be construed to include gifted students, who are also a part of special education in TN. An obstacle to this goal is the past practice of operating in silos with no collaboration, including funding (Dunn, 2012; Fuchs et al., 2010; Sailor and Roger, 2009).

Another challenge of schools is the increase in the diversity of the population including ELLs, and RTI has been stressed as being of benefit to this population (Bender & Shores, 2007; Bineham et al., 2014). One of the guiding principles of RTI² is the focus on leadership at every level to ensure the success of all students including mobilizing resources to achieve this goal (TDOE, 2014). Research has shown that academic achievements result when this critical feature of SAM schools and RTI occurs (Choi et al., 2017; Sailor, 2009). Arden et al., (2017) submits the action item that all students must have access to all areas of services offered through RTI just as their peers do. This aspect and feature of RTI and SAM correlate as an essential practice of the two models.

Family Engagement Through Partnerships. The RTI² strand from the TN Educator Survey addressing collaboration is the strand propounding the practice of communicating and

explaining RTI² to parents. SAM schools align with this feature and engage in partnerships with families of students who attend the school. They also actively seek out the participation of families in the learning process, and some sites have established a parent resource room as a priority and have a parent liaison position (Sailor & Roger, 2005). Swindlehurst et al., (2015) concluded that critical implementations elements of RTI² include effective collaboration. Murawski & Hughes (2009) agree and expounds upon this to say that for RTI to be successful a wide variety of stakeholders must be an equal partner in the process.

It is always good to have parents involved in their child's school and education to allow for a more personalized approach and glean information about the student from the parent's perspective (Lawrence, 2012). SAM schools foster trust by maintaining clear boundaries with families and empower parents as active participants in school teams and other planning processes (Choi et al., 2017). Additionally, direct efforts to include parents and teacher outreach must occur to experience gains in achievement (Dunn, 2012). Principals are charged with discovering ways to include parents in the RTI process, which would be the same in SAM schools (Roberts, 2014). Indeed, both the SAM model and RTI² are aligned in their understanding of the importance of partnerships with families.

All Personnel Participate. The final construct of RTI² in the TN Educator Survey is the strand addressing Tier II and Tier III interventions that provide students with skills-based learning opportunities. This strand aligns with the SAM criteria that all school personnel participate in the teaching /learning process and are valued for their contribution. Sailor and Roger (2005) propose that the key is to enable all school personnel to contribute to the mission of the school. Designing intervention plans and schedules for SAM and RTI are crucial to evaluate data and prioritize individualized interventions. In addition, including all staff to

provide interventions can be beneficial by utilizing staff members' strengths for the betterment of the students. Many staff members who have non-traditional roles may have hidden talents and can help provide interventions (Sailor & Roger, 2005).

The findings of other researchers agree with Sailor (2009), and these researchers recommend convincing professionals to become more active participants in school reform and using data to inform practice (Dunn, 2012; Fullan, 2014). Student data which is collected and analyzed enables teaching staff to make informed decisions about school reform (Choi et al., 2017). Both RTI and SAM are aligned with this crucial element of the program.

The SAM school reform model as applied to all RTI models addresses implementation, fidelity, and sustainability. It includes the critical component of human capital and espouses that failure to pay attention to this aspect of RTI can doom it (Sailor, 2009). In his studies, Sailor (2009) found that full implementation of any reform takes on average at least 3 years and implementation must be monitored along the way. The present study of perceptions of principals' implementation of RTI² aligns with the tenets of this foundation (see Table 1).

Review of Literature

Legislative Roots of RTI

The current use of RTI in no small extent has grown out of the debate about special education identification and services (Buckner, 2013). Both the IDEA and the NCLB have at heart the focus of addressing students' difficulties in school. The IDEA was conceptualized and adopted by Congress in 1975 to enhance services to students with disabilities (Batsche et al., 2006). Kimmel (2008) posits that the main focus of the act was to mandate that students with disabilities be provided a free and appropriate public education, and consequently the right to a nondiscriminatory evaluation. This was landmark legislation that increased educational

opportunities as well as changing the method of identification and education (Jones, 2015). Each reauthorization of this act had at heart the intent to improve these services, but despite this steadfast focus challenges remained.

At the advent of IDEA from 1975 to the 2004 reauthorization, the discrepancy model was the sole method of identification for special education (Green & Barclay, 2017). This model of identification for learning disabilities included a level of underachievement on an intelligence test utilizing a discrepancy formula. The formula has often been referred to as a wait to fail model due to the lack of identification and waiting period that is required until the student reaches the point of failure and a large discrepancy in achievement (Jones, 2015). Maskill (2012) characterizes the interpretation that this model fails to provide students the help they need in the early years when it can benefit them the most. Researchers have also cited other problems with the model including the lack of scientific basis for its use, and the subjective interpretation of the model by those individuals charged with deciding who is eligible for services (Green & Barclay, 2017). Consequently, from the initial implementation of IDEA the evidence against the discrepancy model began to build, and researchers questioned its reliability and validity (Green & Barclay, 2017).

In 2004, Congress amended components of the IDEA and permitted districts the option to use an alternative method to identify students as having a specific learning disability (Castro-Villarreal, Rodriguez, & Moore, 2014; Palenchar & Boyer, 2008). Palenchar and Boyer described the alternative method as being the child's lack of response to scientific, research-based interventions; however, no specific examples of these interventions were outlined. Maskill (2012) elaborates on pre-referral interventions as being used to identify, develop, and implement alternative strategies for those who struggle before they are referred for special education testing.

These pre-referral interventions are designed to be tailored to each child's needs and are based on scientific and research-based in oral expression, comprehension, written expression, basic reading skills, mathematical calculation, and mathematical reasoning. Shepherd and Salembier (2011) postulate that it required a new focus on collaboration between general education and special education to promote achievement for struggling students.

Charged with the task of education leadership, President George W. Bush acknowledged concerns about special education identification and student achievement overall. In 2001, with the passage of NCLB, Congress intended to close the achievement gap and introduce accountability and choices so that no child is left behind (Maskill, 2012). Fuchs and Fuchs (2006) outlined the change in methods of identification, and they predicted that it would have far-reaching implications for the number and type of children identified, kinds of services provided, and who provides them. In Corwin's research (2016), he delved further and defined the additional supports as being scientifically based pre-referral and early intervention services, paired with systematic frameworks of screening assessments and monitoring of student progress. This framework of response to these scientific, research-based interventions was called responsiveness to intervention (RTI).

Response to Instruction Model

As early as 1970, Deno presented a model of cascading services for at-risk students with differing learning needs (Davis, 2018). This conceptualized model included three tiers of prevention consisting of general education interventions during core instruction, Tier II small-group interventions, and Tier III individualized interventions. Researchers such as Fuchs and Fuchs (2006) and Wright (2007) have concluded that many of the models currently in use have been in existence since around 1970, but only in recent years have been organized into a

framework known as RTI. Gersten, Jayanthi, & Dimino (2017) agree with them, but they also elaborated that Ohio, Texas, and California began implementing some form of RTI and data-based decision making since the late 1990s. Furthermore, according to Maskill (2012), this increase in the development of various models is a response to the scrutiny from various special interest groups and government officials about literacy instruction and the identification of disabilities.

In 2008, Fuchs and Fuchs defined six components of a well-run RTI framework: the number of intervention tiers, strategies to target students for intervention, nature of the intervention, how students will be identified, how responses will be classified, and the nature of the evaluation prior to special education. Sansosti et al., (2010) reported similar aspects of RTI as Fuchs and Deschler (2007), but their research also reported about progress monitoring of students. The works of this research, as well as others, identify basic principles of RTI including a preventive approach to education, ensuring an instructional match with student skills, problem-solving orientation, use of effective practices, and a systems-level approach (Barnes & Harlacher, 2008).

One critical feature of all RTI models is the presence of multiple tiers of supports that separate it from other methods of instruction, but the use of these tiers is a point of difference in the basic RTI model (Barnes & Harlacher, 2008). Vaughn and colleagues (2008) posit the most commonly used tiered-model which consists of three tiers; however, Fuchs and Fuchs (2006) implemented a contrasting system of two tiers. Additionally, Iowa has developed a four-tiered system ranging from general education at the first tier to special education consideration at the fourth tier. One common item amongst all of the RTI models is some form of screening measure. Accordingly, these measures identify students who are at risk of reading difficulty.

Response to Instruction and Intervention (RTI²)

RTI² is Tennessee's RTI program designed to meet the needs of students through grade-level instruction and intervention. Through the design of the program, one vital tenant is that strong individualized core instruction is a focus as well as intervention. Research shows that if the core instruction is individualized and is effective, it should meet the needs of 80% of the students (TDOE, 2014). TN Commissioner of Education Kevin Huffman in 2014 outlined a plan to become the fastest improving state in the nation in student achievement results by 2015. He also stressed the belief that all students can reach higher levels of academic achievement.

Interventions in RTI² address deficit skills in Math, Reading, or both, and these are known as Tier II and Tier III instruction. These interventions target the deficit skills as identified on the universal screener. Additionally, an important aspect of RTI² is that students identified in need of Tier II do not miss Tier I instruction. In addition to interventions, student progress is tracked consistently, and adjustments are made in response to the progress monitoring data.

Research studies on the effectiveness of RTI² are limited, due to the relative youth of the program. Because RTI² consists of several components, it must function as a well-orchestrated system to be effective (Fuchs & Deschler, 2014). The success of RTI depends on the support it receives from school leaders (Sansosti et al., 2010). Sansosti et al. goes on to report that most change programs are unsuccessful because educational leaders are not knowledgeable enough to support effective implementation.

Essential Components of RTI and RTI²

Tier 1 Core Instruction. With the goal of RTI being to improve student outcomes, an important component of that is evidence-based instruction of high-quality at all levels, or tiers (Barnes & Harlacher, 2008). Barnes and Harlacher (2008) posit that the probability of positive

outcomes for students is increased by providing this high-quality instruction to all students thereby ruling out poor instruction as a cause for low performance. They describe the initial tier as a continuum of universal supports for all students, and also conclude that researchers have various models and many of these have differences in the tiers.

Seminal researchers in the field of RTI, Douglas and Lynn Fuchs and Donald Compton (2012) use the terms primary prevention, secondary prevention, and tertiary prevention for their model with three levels, or tiers, of RTI. In their research, they elaborate on several components of Tier 1 instruction in the model which includes: (a) the core program, (b) instructional differentiation through classroom routines, (c) accommodations permitting access to the primary prevention program for almost all students, and (d) problem-solving strategies addressing students' behavior and motivation.

Accordingly, these characteristics comprise the general instruction which students receive at this level and are designed utilizing programs and strategies derived from research. A brief screening which identifies students at-risk of needing more intensive secondary prevention also occurs in the primary prevention level. Through prior research on these assessments, a cut-off point is established, and these researchers advocate for fast-tracking students to the tertiary prevention level when the results indicate that these intensive preventions are necessary.

Haynes (2012) espouses a similar description in relation to Tier 1 core instruction but also references other research agreeing with Barnes and Harlacher (2008) that identifies it as universal supports provided to all students and which is the first step in reducing the need for more targeted/intensive supports. These supports are provided to all students in general education and grounded in research. Furthermore, the instruction provided in Tier I, or core instruction, is designed to meet the needs of 80% of the students (TDOE, 2014).

Individual Needs of Students

Demographic data offers context to the school, and in terms of school improvement tells us who we are (Bernhardt & Heber, 2017). It informs the principal about how the student population is changing, and subsequently, school leaders will be better equipped to devise a plan for instructional strategies and curriculum. According to Bernhardt and Heber (2017), schools who are cognizant of their student population before implementing RTI are more equipped to design instructional strategies and targeted interventions meeting the needs of the students.

In addition to population data, achievement data is also a vital component in planning for individual needs of all students in RTI (Bernhardt & Heber, 2017). Student learning data uncover strengths and weaknesses of the program as well as enumerating whether you are meeting the needs of all students (Bernhardt & Heber, 2017). Subsequently, analyzing RTI data and achievement test data for correlations will provide further insight regarding individual student progress within RTI (Maskill, 2012).

Teachers differentiate instruction in RTI by basing their strategies on the individual needs of the learner (Mitchell, 2018). With an increasing population of minority students, the need for differing instructional strategies continues to grow (Bender & Shores, 2007; Bineham et al., 2014). For economically disadvantaged students, their individual needs are also due in part to limited early access to resources (Bender & Shores, 2007). Bender and Shores (2007) also proffer that due to the individual nature of RTI it makes an excellent instructional model for minority and low-income students.

Supports for Students. As a tiered model of service delivery, RTI embodies general education and special education teachers working together to provide a continuum of supports for all students (Castro-Villarreal, Rodriguez & Moore, 2014). Patterson (2016) agrees and

further affirms that RTI is an umbrella-structure composed of evidence-based practices to improve learning outcomes. Furthermore, additional or different forms of instruction are provided to students who require it (Martinez et al., 2006).

Maskill (2012) likewise proffers the analysis that the tiers of support should be introduced to students in the earliest stages of development, even in Pre-K. She further reports on research supporting the provision of prevention and intervention support for children in Kindergarten where early-literacy skills are developed to better position students for future success in later grades. Maskill elucidates on a 2005 study in which 430 Kindergarten students who performed below the 30th percentile on the Woodcock Mastery Test participated in research providing specific interventions. The students were assigned to one of two groups, and the results showed a definite improvement in reading performance as evidenced by scores at the end of the study.

Sailor (2009) discusses student supports and cautions against traps that some schools fall into through application of old ways of thinking about students. Through his work implementing SAM, he has seen tiers of supports become attributes of students rather than considerations of instructional intensity. He provides examples of students being referred to as “Tier 3 kids” and schools who map RTI language over traditional practices. Likewise, he gives attention to challenges in which special education should be rethought of as a source of specialized supports and how to maximize gains from these supports. Haagar, Klingner, & Vaughn (2007) also underscored the concern of defining Tier I good practices versus Tier II and III good practices.

Tracking Student Progress. The RTI process uses frequent progress monitoring data to make instructional decisions regarding the effectiveness of instruction within the tiered level of supports (Batsche et al., 2006). Additionally, progress monitoring and universal screening are

among the core components of RTI (Regan et al., 2015). Universal screening is the assessment of academic performance which generally occurs three times per year in many models of RTI (Regan et al., 2015). This form of assessment measure is designed for identification of students who are not meeting curriculum goals in the previously outlined Tier 1 core instruction, and who need empirically-validated additional supports (Fuchs et al., 2012). Haynes (2012) agreed and elaborated that results from screening assist schools in attempting to predict students who might be at-risk in later grades.

Castro-Villarreal et al., (2014) posited that schools need regular data that tracks how the students are responding to coordinated supports in order to prevent academic problems from becoming more robust. Consequently, in his research 34% of the respondents suggested paperwork as a key problem in tracking progress and also suggested an electronic data system combining data automatically from all testing sources. When tracking student progress, there is a difference in the level of progress monitoring that students receive between tiers. Since this monitoring is used to assess responses to interventions, students in Tier II receive it less frequently than students in Tier III (Regan et al., 2015). One area of concern in Regan et al.'s study (2015) is the response from teachers which outlined a lack of training on assessments and data in order to be able to use them effectively.

Restori et al., (2008) reached similar conclusions as Regan et al., but also posited that these assessments allow educators to be proactive in assisting on an as-needed basis. In designing the RTI² model, the TDOE included assessments as a critical component utilizing ongoing formative assessments, progress monitoring, and curriculum-based measures (TDOE, 2015). Bernhardt & Hebert (2017) agree with the TDOE (2015) that monitoring progress on interventions is vital to evaluate the interventions provided.

One form of progress tracking is the universal screening procedure during which schools collect data to determine needed intervention levels and skill deficits (Patterson, 2016). Data from the screener is analyzed, and students who score below the established cut-off point are considered to be at-risk. In many models of RTI, including RTI², screening occurs 3 times per year for grades K-6 (TDOE, 2018). The RTI² manual recommends that schools should look at students scoring below the 25th percentile on national norms as consideration for at-risk. Once students are identified and placed into tiers, the previously discussed progress monitoring ensues. This progress tracking occurs on a consistent frequency depending on the student's tiered level.

Skills-Based Interventions. As previously stated, there are various RTI models comprised of different tiers that students move across, depending on their assessments and needs. The nature of the academic intervention changes at each tier becoming more intensive. In 2012, Maskill researched the effectiveness of RTI in elementary school and concluded that early reading difficulties are preventable when students identified at-risk in kindergarten are given interventions. She began the research with the initial assumption that students will move among the tiers and receive the varying interventions that are appropriate for their needs. The research included a variety of interventions and components including customization to students needs with an acceleration plan.

Maskill (2012) also supports the findings of other researchers who have identified advancing literacy skills which develop in children during the pre-school ages and are predictive of success in later life. One can interpret from her research that these are some of the skills-based interventions provided to struggling learners in the early grades. The overall result of her research agreed with other studies that providing skills-based interventions assists students to

make reading gains; however, she did caution that the long-term effectiveness had not been determined.

Various other researchers have also identified key early literacy skills that are highly predictive of later ability to read (Burns, Griffin, & Snow, 1999; Casey & Howe, 2002). These skills, such as phonological awareness, oral reading fluency, and phonemic awareness, can assist in modifying a young student's reading ability. In Scanlon's research (2005), he reported that skill-based interventions outside of the core instruction increased scores and revealed clear benefits for those students receiving the intervention. His skills interventions for kindergarten students focused on phonemic, alphabetic, and orthographic skills and the first-grade interventions included additional word attack, letter identification, and word identification skills. The study results revealed definitive benefits to receiving the skill interventions based on the substantial number of students who scored at-risk at the end of first grade.

Subsequently, Gersten, Jayanthi, & Dimino (2017) reference a study by Simmons (2008) which administered intensive Tier II and Tier III skill-based intervention outside of the core instruction and at the end of the study 38 out of the 41 attained adequate levels of reading proficiency. This research differed from previous studies through the delivery of interventions by both classroom teachers and interventionists and the tier II interventions utilized a *standard protocol* approach in which the same program was utilized as the intervention for all students.

In their 2007 book, Bender and Shores provide a guide to RTI and further reference the available literature suggesting that interventions should be provided over time of at least six to eight weeks; however, they do also conclude that there is no consensus of a specific period of time for the interventions. Their additional conclusion after research differs from other research

through a prediction that despite providing interventions, the number of students identified as learning disabled will not decrease.

Although the tenets of RTI focus on the needs of all students, most practices focus on the area of reading and occur in the primary grades (Fuchs & Fuchs, 2006). Bernhardt and Hebert (2017) demonstrate strategies and a guide to continuous school improvement through direct examples of what interventions are and what they are not.

Communication and Collaboration. A factor that contributes to a reform implementation is parental involvement. In 2009, the International Reading Association (IRA) Commission on RTI published a set of guiding principles to assist educational agencies in the implementation of RTI. Among the six principles emphasized and referenced throughout the document is collaboration. Furthermore, the importance of genuine collaboration among many professionals is noted along with the necessity of active participation in the process. In the work of Martinez et al., (2006) the importance of the systematic review of assessment in collaborative multidisciplinary instructional teams is discussed. Ehren et al., (2009) agrees and expands on that finding that RTI is not a general education nor a special education initiative, but a whole school initiative instituted to provide an optimum instruction for all students, including those who struggle.

While some researchers have praised RTI for its potential benefits, other researchers have expressed criticism around various RTI models in use because of weaknesses, which include communication. Much like the IRA guiding principles, Isbell and Szabo (2014) concluded in their research that campus-wide collaboration and communication are essential. Accordingly, the importance of engaged administrators who actively listen to the teachers' and parents communicated concerns cannot be overestimated (Fuchs & Deschler, 2007). Bean and

Lillenstein (2012) studied the school reform effort of RTI and concluded that strong principal leadership is essential for implementation that changes conditions to include collaboration and a shift in learning and achievement.

It is often noted that one advantage of RTI is that it moves the educator away from operating in the “silos” of the past (Ehren, 2013; IRA, 2009). Another advantage promoted among researchers is that RTI moves the school toward more of an integrated approach designed to meet the needs of all students. Along with this integrated approach, is the necessity for educators to work in more substantive ways to have true and creative collaboration (Ehren et al., 2009). This new form goes beyond the usual thoughts about teamwork. It requires many different forms and individuals working together to “craft the kind of picture that suits their school” (IRA, 2009). All of this happens while working respectfully in tandem with families and students.

The first step in communication is to let go of the traditional views of communication and collaboration among professionals and parents. RTI calls for deliberate, intentional, ongoing collaboration, which is not to be confused with cooperation. This type of collaboration involves working together with a common purpose, which consequently in RTI is to improve student achievement (Ehren, 2013). Schilling (2014) refers to this as part of the infrastructure of an effective RTI program and correspondingly elaborates on her research findings that administrators and teachers view RTI as an important process in which collaboration is vital to building successful schoolwide improvement.

Murawski and Hughes (2009) identify the array of stakeholders that should interact to provide a wide variety of views and expertise, yet share responsibilities and goals. They further espouse the need for parity and agree with Fuchs and Deshler (2007) about the requirement of

active participation in the process. Other researchers concluded like Fuchs and Deshler (2007) that a shared language around RTI can correspondingly produce success.

Principals are charged with surmising ways to engage parents in the RTI process and to lead teachers in how to include the parents (Roberts, 2014). This will necessitate the training of families in how they become a part of the process, as the advent of RTI has produced an entirely new lexicon for parents. Senge (2000) proposed that teams, led by the principal, analyze situations to revolutionize a school with new beliefs and practices that elevate standards. RTI teams are groups charged with a variety of decisions, include intervention plans. These groups share vision and expertise with families to encourage involvement and collaboration. Esler, Godber, & Christianson (2002) investigated school and family partnerships and listed the benefits for families and students to include higher achievement.

Haager, Klinger, and Vaughn's work (2007) reminds us what other researchers concluded about collaboration and parent involvement. They promote that the second tier of intervention requires teachers to collaborate more with their colleagues and the families of their students. The research synthesis also outlines the proposal that collaboration might be more effective in an environment more conducive to teachers revealing their weaknesses. Furthermore, we are reminded that parents have information that can be valuable to school leaders and teachers when implementing interventions. The family can be a faithful ally in assisting students to reach grade level expectations. Consequently, effective school leadership must be developed to contribute to the overall success of RTI implementation.

Fidelity Instruments. A significant body of research has shown that RTI is associated with an increased likelihood of improved outcomes for students having significant academic and behavioral needs (Arden et al., 2017). However, recent research findings from evaluations of

RTI have revealed that the implementation of the framework in schools is a problem and is not occurring with any measure of fidelity (Arden et al., 2017). Indeed, of the aforementioned research, fewer than 10% of the state education agencies (SEA) recommending the use of RTI have guidelines for implementation. Research evaluations of RTI have proffered the existence of problems encompassing this lack of guidance surrounding implementation (Balu et al., 2015). Indeed, the recent evaluation by Balu et al. (2015) agreed with the report by Arden et al. and reported a lack of positive effects in student achievement of those students receiving Tier II interventions performing close to their school's screening cut point.

When discussing monitoring of fidelity, schools and districts working with the National Center of Intensive Intervention (NCII) demonstrated challenges related to fidelity monitoring of assessments and interventions (Gandhi, Marx, Kuchle, Lemons, & Wehby, 2016). While researchers agree on the importance of the how in implementation occurring, implementing the program while having to learn how to do so does occur (Arden et al., 2017).

In 2010, Mellard outlined the problem of a lack of fidelity as being the inability to link a student's lack of response to the instruction if the instructional protocol is not being followed. With the goal being student success, protocol allows the educators to make informed data-based decisions (Mellard, 2010). From the first phase of implementation to monitoring fidelity and providing supports, Fixsen et al.'s (2005) stages of implementation instrument can provide a useful framework to maximize the successful implementation of RTI. He identifies context, compliance, and competence as the three components of intervention which must be monitored. He also proffers that assessments of performance are a critical part of any program.

Researchers have identified fidelity monitoring by school psychologists as an underutilized instrument, and Keller-Margulis (2012) highlights research findings that only

11.3% of school psychologists conduct this fidelity monitoring. Keller-Margulis (2012) summarizes one-on-one and group monitoring which should be conducted by psychologists to ensure adherence to the program before referrals for special education are made. Keller-Margulis (2012) further outlines critical fidelity monitoring instruments for the domains of assessment, intervention and instruction, and procedural integrity. In each of these three domains, direct observations, indirect and direct data collection, and training documents are captured. The seminal researcher Gresham also advocated for assessments of fidelity as part of the RTI program.

Additionally, Bernhardt and Hebert (2017) advance a detailed instrument to monitor fidelity to the RTI program. Their instrument consists of a detailed map of questions, forms, documents to collect, protocols, and observation instruments and; furthermore, they are clear that it is essential to know what is being planned for implementation as well as what is currently implemented. Fidelity instruments provide data about the validity of the program in regards to how it is implemented, which enables one to have confidence in the student progress data (Arden et al., 2017).

In the RTI² program, indirect fidelity checks such as reviewing lesson plans, scheduling, attendance, and data should be conducted regularly along with direct observations. Tier II students must receive a minimum of three checks by the time 8-10 data points have been collected, and Tier III students must have a minimum of five fidelity checks within the same time frame (TDOE, 2014). Accordingly, fidelity instruments have been constructed and are included in the framework to establish a state-wide consistent instrument (TDOE, 2014).

Major Themes in the Literature

A principal's experiences and understandings within the context of complex conditions influence their support for RTI in schools (Printy & Williams, 2015). Implementation research has shown that principals customarily add more interventions rather than address core instruction issues (Printy & Williams, 2015). Wixson and Valencia (2011) advance the view that skill about assessments and in-depth knowledge are the most essential factors in the success of an RTI approach. Additionally, before the RTI program interventions were not inclusive of formative assessments that could ensure student growth (Gardenhour, 2016). While various RTI models have been in use for quite some time, the TN RTI² model has only been in existence since 2014.

A significant theme in the literature is the history of legislative programs and mandates that led to the growth of RTI. Green and Barclay (2017) outlined the critically consistent concerns about the use of the discrepancy model for learning disability identification which gave rise to the RTI² model. The RTI² manual offers an outline and specifics of the framework which is intended to produce ready students who have the skills necessary to be successful adults. According to Printy and Williams (2015), RTI is a leading strategy to address deficiencies and refocuses classroom instruction to emphasize the methods of increasing the learning of all students.

An additional theme is the importance of school leadership to successful implementation and sustainability of RTI. The TDOE has outlined its belief that school leadership is essential in ensuring the success of students through the RTI² framework (TDOE, 2018). Maier et al., (2016) conducted a study of leadership and RTI and concluded that there were concerns about implementation with fidelity and that more research was needed on the topic. Davis (2018)

agreed and concluded that unless the perceptions of the principal are sought, fidelity of implementation will not occur.

Although RTI mandates in state and national policy are clear, districts still struggle with issues associated with RTI (Prewett et al., 2012). Savitz, Allington, and Wilkins (2018) conducted a national study of updated information that state departments of education are disseminating on their websites. They conclude that while all 50 states provide guidelines or frameworks to assist in the implementation of RTI initiatives, most states did not provide clear and consistent guidelines and frameworks. The conclusion can be drawn that even though RTI² is still relatively new, our statewide framework puts us in the minority as a state.

Gap in the Research

This study fills a gap in the literature surrounding the RTI² program. Due to the relative youth of the program, the literature and studies are limited, and most of these relate to other aspects of the program or the analysis of teachers' viewpoints. As the person charged with leading the implementation of a program like RTI², the perceptions of the principal are vital to the level of implementation and improving student achievement. In order for full implementation to occur, one specific population must be on board, school administrators.

Even though research is being performed on aspects of RTI², these researchers have recommended further study on the perceptions of the framework itself. There is also limited or no research with the inclusion of demographic data.

Summary

RTI² is a framework for learning in which each layer represents an increasing need for supports and interventions in order to address skill-deficits. When Tier I core instruction is delivered with fidelity, it should address the needs of about 80% to 85% of the students (TDOE,

2014). The foundation of the framework is on educators working together to make data-based decisions. There are five vital constructs of RTI² analyzed in this study including communication with parents, interventions outside of the core instruction, the intent to address the needs of all students, Tier II and Tier III providing skills-based learning, and the use of multiple data sources for instruction.

Chapter 3

Methodology

The purpose of this study is to conduct a quantitative investigation into principals' perceptions of the RTI² program, and its implementation in five municipal districts. This study was performed by the researcher to analyze data related to Tennessee's Response to Instruction and Intervention (RTI²) framework for learning. The intent of this study was to focus on the implementation of RTI² among the principals in the municipal districts and the combination of demographics that is the best predictor of the level of implementation. That is, the level of agreement and concerns of leaders of schools. The potential significance of the study is that it will gain insight into the views of school administrators and may provide useful knowledge to school leaders to inform decisions related to professional development for teachers in schools who utilize RTI² frameworks.

This chapter will provide a discussion of the details of the independent and dependent variables used in the design of this study and how researchers will apply them to a school setting. Information is presented about the targeted principal population and the sampling frame. An explanation of the general methodology employed in this study-specifically secondary analysis of an existing set of survey data will ensue. A description of the existing instrumentation used in the study, the TN Report Card, and the TN Educator Survey, is presented along with information on its reliability and validity, and the procedures for recruitment, participation, and data collection will be outlined. A discussion of threats to validity is followed by a discussion of ethical procedures.

Research Design and Rationale

For the purpose of this research study, the researcher used a quantitative research design to organize the methodology. Quantitative research, according to Cresswell (2014), is research that examines the interrelationships among variables and describes trends over time.

Customarily, variables are measured utilizing instruments of predetermined, closed-ended questions which allows numbered data to be analyzed using statistical measures (Cresswell, 2014; McMillan, 2016).

As a result, this study utilized a methodology of a descriptive non-experimental quantitative nature through investigating data obtained from the TN Educator Survey and previously published data from the TN Report Card. The data obtained from the TN Educator Survey was used to answer the questions measuring the perceptions of principals surrounding the level of implementation of RTI² in their respective schools. Data from the TN Educator Survey and the TN Report Card was used to conduct an analysis of the principals' perceptions of the implementation of RTI² and the district TVAAS, students with disabilities, and economically disadvantaged demographics. The independent variable of the study is the principals' perceptions, and the dependent variables are the data from the TN Educator Survey, the districts' TVAAS demographic, the district's students with disabilities demographic, and the districts' economically disadvantaged demographic as reflected in the TN Report Card.

There were no time constraints to conducting data collection consistent with the quantitative study design of a secondary analysis nature. The data being utilized is archival data which is readily available on the TDOE website. The study's design is conducive to measuring the perceptions of the principals who are expected to lead the implementation of the RTI² program in their schools.

Population

Subsequent to the TELL survey, the TDOE partnered with the Tennessee Education Research Alliance (TERA) at Vanderbilt University to adopt the Tennessee Educator Survey as its measure of choice with respect to educator perceptions. It is a way to allow the educators to provide feedback on what is working and where improvements can be made in a variety of areas including state initiatives such as RTI². This survey is distributed to all teachers, administrators, and certified staff in the state with a valid email address in the TN Compass system, the online educator licensing database. Participation in the survey is based on the assumption and condition that the respondents' answers will be voluntary and anonymous.

Overall, the educators who responded to the survey are representative of teachers and administrators in the state, although there are some differences across the core regions that the districts are divided into and also district type. This dataset for the Tennessee Educator Survey populated at over 37,000 educators, which is a little over half of the teachers and administrators in the state. The dataset of responses is reported for the statewide population and will be categorized by core region, school district, and into two pathways according to administrator and teacher.

Sampling and Sampling Procedures

Quantitative sampling includes either random or non-random sampling and provides information about the relationships of the variables being studied. Nonrandom purposeful sampling utilizes data linked to the purpose of the study, and the sampling strategy utilized for this study was the nonrandom purposeful sampling (Cresswell, 2014). McMillan (2016, p. 124) states that purposeful sampling, "is done so that the sample is representative of participants with characteristics that are being studied."

The nonrandom purposeful sampling in this study was conducted as a secondary analysis of existing data sets that have been collected prior to this research. As the present study draws upon existing sources of data, combining them for purposes not intended in their original collection, it exemplifies a particular type of social inquiry called “secondary analysis.” According to Hakim (1982), secondary analysis may be defined as “further analysis of an existing data-set which presents interpretations, conclusions, or knowledge additional to, or different from, those presented in the first report on the data collection and its results” (p. 1).

The present study would appear to lend itself to secondary analysis as it seems to be angled towards the whole constellation of issues regarding what constitutes “effective teaching,” how that construct should be measured, and the extent to which one measure of that construct can be substituted for another. Next, because this study brings together data from the administration of two different measures the present study applies somewhat “more sophisticated analytical techniques to ... answer questions” (Hakim, p. 1) that could not be addressed previously as the data were housed in different files.

The sampling frame for this analysis included the total administrators in the five municipal districts, and there were not any administrators excluded from the sampling frame. The sample was drawn from the administrators who responded to this survey. Respondent answers were disaggregated and reported for those school districts in the population whose response rate equals or exceeds 45% of the educators who are invited to participate in the survey. The secondary dataset for this study is the demographic data obtained from the Tennessee Report Card for each school district. According to Cresswell (2014), utilizing survey research allows the researcher to collect evidence from geographically dispersed individuals as well as quickly and economically.

Nonrandom sampling was used to obtain a sample of 109 total respondents with a response rate of 71% for district A, a rate of 76% for districts B and E, a rate of 70% for district C, and a rate of 79% for district D. The sample consisted of 109 administrators of the five chosen municipal school districts having been in existence for a relatively short period of time after a restructuring period within the overall county. There are 16 administrators for district A, 31 administrators for district B, 13 administrators for district C, 20 administrators for district D, and 29 administrators for district E. The dataset from the Tennessee Report Card for each municipal district's demographic TVAAS score, students with disabilities percentage, and economically disadvantaged percentage was obtained as the additional data chosen for the statistical correlation. For purposes of the analysis, the alpha level at .05 indicates a willingness to accept a 5% chance of error in the statistical analysis and power at 0.95 representing a 95% chance of finding statistically significant differences when they exist. The effect size was set at 0.5.

The relatively short period of existence for these school districts contributes to a paucity of research. In 2012, one of the two existing school districts in the existing county surrendered its charter which essentially merged that city school system into the county school district. Subsequently, in 2014 these municipal districts separated from the county school district to form their own districts. Even though they have only been in existence since 2014, four of the five districts were recently named as advancing school districts by the TDOE, and the same four districts also contain 2018 designated reward schools. The relative youth of the sample districts as well as the relatively new RTI² initiative contributed to the decision to add to the body of knowledge of RTI² through this study. It is the hope of this researcher that this study may help develop a dialogue around how to improve Tennessee's Response to Instruction and Intervention.

Procedures for Recruitment, Participation, and Data Collection

Common to quantitative research is the collection of data using instruments with preset questions and responses and also data from human subjects with the subsequent placement into categories for statistical analysis (Cresswell, 2014). This study is an investigation surrounding district educational leaders' perceptions of RTI² and utilized quantitative methodology data from the TN Educator Survey and the TN Report Card. As the present study draws upon existing sources of data, combining them for purposes not intended in their original collection, it exemplifies a particular type of social inquiry called "secondary analysis." According to Hakim (1982), the analysis of secondary data presents additional knowledge and interpretations from that which is presented on the first collection. Specific uses to which such analyses may be put include:

- Condensed reports (such as social area analysis based on selected social indicators)
- More detailed reports (offering additional detail on the same topic)
- Reports which focus on a particular sub-topic (such as unemployment) or social group (such as ethnic minority)
- Reports angled towards a particular policy issue or question
- Analyses based on a conceptual framework or theory not applied to the original analysis
- Re-analyses which take advantage of more sophisticated analytical techniques to test hypotheses and answer questions more comprehensively and succinctly than in the original report. (Hakim, 1982, p. 1)

Due to the nature of the secondary analysis of the archival data, the present study did

not require any recruitment procedures for the TN Educator Survey beyond that which occurred at the time the original survey was distributed in the Spring. Furthermore, the data from the TN Report Card about schools and districts are published each year and did not require any procedures either.

The data studied as a part of this research was obtained in a systematic manner and coded in such a way as to prevent identification. Demographic data sets about the TVAAS scores, students with disabilities, and economically disadvantaged percentages were collected via the TDOE website on each district as an essential description of the districts and was analyzed as predictors of RTI² implementation among districts. The foundational work for this study can become a stepping stone for future learning around the topic of RTI² and inform school leaders surrounding school improvement.

Instrumentation and Operationalization of Constructs

A review of the literature revealed a variety of measures in use to study RTI². The utilization of survey research provides an economical and efficient means of gathering data from a number of respondents (Cresswell, 2014). It generates information that the researcher can analyze and draw conclusions regarding. As opposed to experimental design, research conducted utilizing surveys does not administer a treatment to participants.

The TN Educator Survey has been used in studies since its first administration, but there is a gap in the literature surrounding its use to address the implementation of RTI² specifically. This survey is an annual joint effort by the TDOE and the Tennessee Education Research Alliance (TERA) at Vanderbilt and grew out of the Teaching, Empowering, Leading, and Learning (TELL) survey. It consists of closed-ended questions while using a five-point Likert-type scale to gather the perception of the teachers and administrators. The responses range from

strongly agree, agree, no opinion, disagree, and strongly disagree. The 2016 administration marked the sixth year that the Department of Education has partnered with the TERA at Vanderbilt University to gauge educator perceptions.

Furthermore, the TN State Report Card has been in existence for several years as a method of providing information on the state's schools and districts. It was developed by the TDOE and has accountability ratings and various demographic ratings on each school and district. Both the report card and the educator survey are published on the TDOE website for public review and use to inform the community about the schools and districts.

The appropriateness of the tools in this study is the measurement of principals' concerns and perceptions toward RTI² practices and implementation in the five municipal districts being studied. The instrument enabled the researcher to analyze data related to Tennessee's Response to Instruction and Intervention and provide information to school leaders to inform decisions related to professional development for teachers in schools who utilize RTI² frameworks. In merging the perceptual data derived from the TN Educator Survey with other data sources—specifically the district demographics and student outcomes—the study enabled insight into the overall level of implementation of RTI² in each district.

The TN Educator Survey was developed in partnership with the Tennessee Education Research Alliance (TERA) at Vanderbilt University, which was formerly known as the TN Consortium on Research, Evaluation, and Development (TNCRED). Some informal evidence of validity stems from the survey's origins with the questions having been developed from other large-scale validated educator surveys including the Schools and Staffing Survey (SASS), Teaching, Empowering, Leading, and Learning (TELL) survey, and the University of Chicago Consortium on Chicago School Research's 5 Essentials Survey. This evolution and development

of the survey is evidence of the instrument's *content validity*. The survey website further provides reliability assurance that the TDOE partners with Westat to provide weighted results accounting for educator response patterns. These weighted results are aimed at eliminating biases and variances in using the data to represent the population for the entire state (TDOE, 2018).

The TDOE employed Swandlund (2011) to analyze the reliability of the instrument, and consequently the research concluded that it offered a robust and statistically sound approach for measuring teaching and learning conditions. The external reliability testing used both the Rasch model person separation reliability and Cronbach's alpha. The Cronbach's alphas coefficients ranged from 0.86 to 0.95 for each construct, which shows the instrument has a high internal consistency. Furthermore, the Cronbach's alpha coefficient for the RTI² strand was 0.87.

The validity testing assessed the alignment between survey items and broader survey constructions using the Rasch Rating Scale Model to examine the items-measure correlation and generalizability. The finding confirmed that the survey constructs are more stable if broken into multiple constructs; therefore, this is how the survey is structured.

The internal reliability and validity testing verified the stability of the instrument across survey populations. The data for these analyses yielded a response rate of 82% including several categories of educators. A confirmatory factor analysis (CFA) using varimax rotation procedures verified the actual structure of the data reflects the expected structure from previous validity studies. The informal validity of the dataset from the TN Report Card is evidenced from its widespread adoption and longevity.

The use of an already published tool and archival data allowed the researcher to draw conclusions about the implementation of the RTI² framework and the impact district

demographics have on the level of implementation. Both tools are sufficient to answer the research questions.

The variables in this study include independent and dependent variables. The independent variables manipulated are the principals' perceptions as reflected in TN Educator Survey, the districts' TVAAS scores, the districts' disability status, and the districts' economically disadvantaged demographics as reflected in the TN School District Report Card. The principals' perceptions were measured by their responses on the educator survey. The dependent variable of the study is the level of implementation of RTI² as measured by the TN Educator Survey. The principals' perceptions are their responses to the five strands constructs of RTI² on the survey, which consist of:

1. In our school, RTI² is intended to address the needs of all students, not just those who are behind.
2. In our school, RTI² interventions are in addition to core instruction.
3. In our school, Tier II and Tier III interventions provide students with skills-based learning opportunities.
4. Our school uses multiple data sources to track student progress and assign them to different tiers of intervention.
5. I feel comfortable explaining to parents/guardians why RTI² is being implemented.

The disability status is the number of students in the district who qualify for special services under IDEA in the specific special education categories, and the TVAAS scores are the school and district growth scores as reported on the report card and measured from the achievement tests. The economically disadvantaged demographics are the numbers of students who receive free and reduced lunch as identified by the federal government regulations. The

level of implementation is the degree to which the RTI² initiative is executed in the schools and districts.

Data Analysis

The research questions for this study focus on the implementation of RTI² among the principals in the municipal districts and the combination of demographics that is the best predictor of the level of implementation. That is the level of agreement and concerns of leaders of schools. More specifically, the researcher aims to answer the following two overarching questions:

1. *What are school principals' and school districts' biggest successes in utilizing the RTI² framework to provide intervention for students?*
2. *What are areas of the RTI² framework that school principals, individually and collectively, continue to struggle to address?*

To answer the aforementioned overarching questions, the researcher devised four research questions involving district demographics and the five strands and principals' perceptions of implementing the RTI² framework. The researcher will utilize data from the Tennessee Educator Survey given every spring to all teachers and administrators in Tennessee. Deriving from the overall purpose of the study are the following research questions:

Research Question 1: Do significant differences in principals' perceptions exist between the five-strand framework of RTI²?

H1o: There is no statistically significant difference in the perceptions of principals between the five-strand framework of RTI².

H1a: There is a statistically significant difference in the perceptions of principals between the five-strand framework of RTI².

Research Question 2: Is the perception of implementing the five-strand framework of RTI² by principals influenced by the school district they belong to?

H2o: There is no statistically significant difference in the average perception of implementation by principals among the five school districts.

H2a: There is a statistically significant difference in the average perception of implementation by principals among the five school districts.

Research Question 3: Does district demographic criteria (such as TVAAS rating, percentage of direct disability status or socioeconomic status) influence the perception of RTI² implementation in principals?

H3o: No district demographic criteria affect principals' perceptions of RTI² implementation.

H3a: One or more district demographic criteria affect principals' perceptions of RTI² implementation.

Research Question 4: Does a combination of district demographics better predict the perception of RTI² implementation among school districts than a single demographic factor alone?

H4o: No district demographic criteria combine to predict the variance in perception of RTI² implementation among school districts better than a single factor.

H4a: A specific combination of district demographic criteria combine to predict the variance in perception of RTI² implementation among school districts better than a single factor.

Research question 1 was addressed by conducting a Friedman rank sum test to examine whether the medians between the five RTI² statements on the TN Educator survey were equal. Utilizing SPSS, Kendall's coefficient of concordance (Kendall's W) was calculated to determine the strength-of-a-relationship index (effect size) for the Friedman's test. Research question 2 was addressed by a one sample T-test followed by a Shapiro-Wilk to determine whether the responses about implementation could have been produced by a normal distribution. Research question 3 was conducted utilizing 3 separate linear regression analyses, measuring the perception of implementation vs. each of the 3 quantitative demographic criteria variables: TVAAS rating, percentage of direct disability status and socioeconomic status. Research question 4 was constructed by a hierarchical linear regression where the highest predictor in research question 3 will be the first predictor in the hierarchy, the second highest predictor will be the second in line, and the third highest predictor will serve as the final group in the hierarchy. This method of stacked regression will allow for determining if an increasingly complex linear model contributes meaningfully to explaining the variance in our dependent variable, by means of the 'R-squared change' statistic.

Threats to Validity

The ability to make inferences from the TN Educator Survey and the TN Report Card instruments to measure the principals' perceptions of the level of implementation is the goal of establishing the external and internal validity of the study. Validity is developing sound evidence to make sure that the test interpretation matches its proposed use (Cresswell, 2014). When using data from a survey, some respondents may not have answered all five of the strands in the survey related to RTI². This threat to validity was addressed by coding the data responses to account for the missing data. Another threat is the representative nature in relation to the overall population.

This can affect the generalizability to the entire population. The researcher will establish this as a limitation to the study.

Ethical Procedures

The researcher obtained approval from the University of Memphis Institutional Review Board (IRB: PRO-FY2017-137) through the exempt status of conducting a secondary analysis of data. The study is a quantitative secondary analysis of de-identifiable archival data from two data-sets. When conducting an analysis, the performance of data collection must include the protection of confidentiality and respect the wishes of the individuals or sites (Cresswell, 2014). The instrument that was utilized is the TN Report Card and TN Educator Survey addressing five strands, and the data is already coded and is stored on a computer with a password. There are no research participants that were included in the study other than the data already accessible which is anonymous.

Summary

The method of inquiry for this study was descriptive, non-experimental and quantitative in nature utilizing the principals' responses on the TN Educator Survey and demographic data from the TN School District Report Card. The study focuses on the principals' perceptions and the implementation of RTI² coupled with the influence and prediction of perceptions by the demographic data. The inquiry is a secondary analysis, and the data sets are de-identifiable archival data collected in the Spring of 2016. The data collection must code the responses in such a way as to make it de-identifiable to further the protection of confidentiality (Cresswell, 2014). Research question 1 was addressed by a Friedman rank sum test, research question 2 conducted a one-sample t-test followed by a Shapiro-Wilk, research question 3 conducted 3 separate linear

analyses, and research question 4 constructed a multiple linear regression analysis. All analyses were performed utilizing SPSS 25.

Chapter 4

Results

Introduction

The purpose of this study is to understand principals' perceptions of the RTI² program and its implementation in five municipal districts. This study was performed by the researcher to analyze data related to Tennessee's Response to Instruction and Intervention (RTI²) framework for learning. Cowan and Maxwell (2015) researched on the RTI approach and concluded that practitioners and school leadership perspectives must be considered. The intent of this study is to focus on the implementation of RTI² among the principals in the municipal districts and the combination of demographics that is the best predictor of the level of implementation. That is, the level of agreement and concerns of school leaders. The potential significance of the study is to gain insight into the views of school administrators and may provide useful knowledge to school leaders and policy makers to inform decisions related to professional development for school leaders and teachers in schools who utilize RTI² frameworks. The TDOE (2018) describes research about RTI² as "building on progress and learning from areas of need".

The primary research questions driving this project, in addition to their accompanying hypotheses are as follows:

Research Question 1: Do significant differences in principals' perceptions exist between the five-strand framework of RTI²?

H1o: There is no statistically significant difference in the perceptions of principals between the five-strand framework of RTI².

H1a: There is a statistically significant difference in the perceptions of principals between the five-strand framework of RTI².

Research Question 2: Is the perception of implementing the five-strand framework of RTI² by principals influenced by the school district they belong to?

H2o: There is no statistically significant difference in the average perception of implementation by principals among the five school districts.

H2a: There is a statistically significant difference in the average perception of implementation by principals among the five school districts.

Research Question 3: Does district demographic criteria (such as TVAAS rating, percentage of direct disability status or socioeconomic status) influence the perception of RTI² implementation in principals?

H3o: No district demographic criteria affect principals' perceptions of RTI² implementation.

H3a: One or more district demographic criteria affect principals' perceptions of RTI² implementation.

Research Question 4: Does a combination of district demographics better predict the perception of RTI² implementation among school districts than a single demographic factor alone?

H4o: No district demographic criteria combine to predict the variance in perception of RTI² implementation among school districts better than a single factor.

H4a: A specific combination of district demographic criteria combine to predict the variance in perception of RTI² implementation among school districts better than a single factor.

Chapter 4 outlines the data collection procedures, including recruitment, populations and baseline descriptive statistics. Accompanied by brief discussions, it continues with summary statistics for the population and a summary of all analyses employed to answer the research questions, presented in order of research questions. A synopsis of what was learned from these analyses summarizes the chapter.

Data Collection

The study examines district educational leaders' perceptions of RTI² and utilizes quantitative methodology data from the TN Educator Survey and the TN Report Card. Quantitative research, according to Cresswell (2012), is research that examines the interrelationships among variables and describes trends over time. Customarily, variables are measured utilizing instruments of predetermined, closed-ended questions which allows numbered data to be analyzed using statistical measures (Cresswell, 2012; McMillan, 2016). As such, the present study draws upon existing sources of data and thus is a secondary analysis.

Hakim (1982) describes the purpose of a secondary analysis as one of presenting additional conclusions or interpretations from the original data-set. Due to the nature of the secondary analysis of the archival data, the study did not require any recruitment procedures for the TN Educator Survey beyond that which has already occurred at the time the original survey was distributed. Furthermore, the data from the TN Report Card about schools and districts is published each year, is publicly available, and thus did not require any procedures as well.

The data studied were obtained in a systematic manner and coded in such a way as to prevent identification. Demographic data sets about the TVAAS scores, students with disabilities, and economically disadvantaged percentages were collected on the TDOE website

for each district. TN School District Report Card data is collected and published yearly regarding each school district and the state-level aggregated scores (TDOE, 2018).

Data retrieved from principal responses in five municipal school districts on the Tennessee Educator Survey was analyzed as well. Questions 25a-25e on the TN Educator Survey regarding RTI² served as the basis of data on the 5 constructs of RTI². The 5 strand constructs from the TN Educator Survey are:

1. In our school, RTI² is intended to address the individual needs of all students, not just those who are behind.
2. In our school, Tier II and Tier III interventions are in addition to core instruction.
3. In our school, Tier II and Tier III interventions provide students with skills-based learning opportunities.
4. Our school uses multiple data sources to track student progress and assign students to different tiers of intervention.
5. I feel comfortable explaining to parents/guardians why RTI² is being implemented.

Swindelhurst et al., (2015) reasons that choosing to study perceptions toward the specific constructs of RTI² will aid in the insight of specific elements as well as implementation. These questions provided scenarios involving RTI² with five possible Likert-style answers ‘strongly disagree,’ ‘disagree,’ ‘agree,’ ‘strongly agree,’ and ‘do not know,’ where ‘strongly agree’ indicating the most positive perception towards RTI². Summary statistics were obtained to determine how many individuals from each of the five chosen districts answered each Likert value for each question regarding RTI² (Regan et al., 2015). Data set was placed in SPSS 25 for analyses.

From this data was created the Principal Perception Index (PPI) analysis variable for each district. Likewise, the PPI was calculated by assigning each Likert response ‘strongly disagree’ through ‘strongly agree’ a multiplier coefficient value 0-3. The sum of individuals within each district who answered each survey question under a certain Likert value was multiplied by that Likert value’s multiplier coefficient. Each of these multiplied values were then added together, separated by district, and divided by the maximum possible score each district could have obtained if every individual answered ‘strongly agree’ for every question. This process created a single value for each district, the PPI, with a range of 0-1, where higher values indicate better principal perception of RTI² implementation based on their responses to the pertinent questions in the TN Educator Survey. This process also controls for unequal populations among each district. Individuals who answered ‘do not know’ were not included in the PPI calculation. The benefit of creating the PPI is that it generates a single value for each district to compare against the single values of the other variables of interest in this project (TVAAS rating, percentage of direct disability status, and socioeconomic status), whereas without this transformation principal perceptions were represented with a matrix of values for each district.

Results

Research Question 1. In order to address the first research question, “Do significant differences in principals’ perceptions exist between the five-strand framework of RTI²?”, the researcher used the Friedman Rank Sum Test to determine whether the ranks differ between the five school districts’ principals. The Friedman Test consisted of a nonparametric alternative to a repeated measures one-way Analysis of Variance (ANOVA).

The summary of the Friedman Rank Sum Test results is displayed in Table 2, and post-hoc tests to further explore the significant effects are displayed in Table 3.

Table 2

Friedman Rank Sum Test

RTI ² Constructs	Mean Rank	χ^2	df	p
Addresses individual needs	2.63	93.13	4	.001*
Interventions and core instruction	3.38			
Tier II and Tier III interventions	3.44			
Uses multiple data sources	3.01			
Comfortable explaining RTI ² to parents/guardians	2.54			

Note. * $p < .01$ (two-tailed)

Since we cannot make the assumption that the data is normally distributed among the districts, a Friedman test was conducted to evaluate the differences among the mean scores for each construct across all districts. Mean rank scores for each strand were conducted. Among all the constructs, the Friedman rank test reveals scores for a) Tier II and Tier III interventions (median = 3.44), b) Interventions and core instruction (median = 3.38), c) Uses multiple data sources (median = 3.01), d) Addresses individual needs (median = 2.63), and e) Comfortable explaining RTI² to parents/guardians (median = 2.54). The results of the Friedman Test were significant indicating differences in the median values, $\chi^2(4, N = 109) = 93.13, p < .001$, and the Kendall coefficient of concordance of .21 indicated fairly strong differences among the five constructs. The Kendall coefficient of concordance test is a measure of relationships between the 5 strands and is rated on a score from 0 to 1. The Kendall score is .21, therefore there is a low level of agreement among the five constructs. Since $p\text{-value} = 0.001 \leq 0.01 = \alpha$, we reject the null hypothesis. Table 2 presents the results of the Friedman rank sum test.

Table 3 presents the post-hoc tests for the pairwise comparisons for the mean ranks of the five RTI² constructs.

Table 3

Pairwise Comparisons for the Mean Ranks of RTI² Constructs

<i>RTI²</i> Comparison	Observed Difference	Critical Difference
Addresses individual needs - Interventions and core instruction	81.00*	65.53
Addresses individual needs - Tier II and Tier III interventions	88.00*	65.53
Addresses individual needs - Uses multiple data sources	41.50	65.53
Addresses individual needs - Comfortable explaining RTI ² to parents/guardians	10.50	65.53
Interventions and core instruction -Tier II and Tier III interventions	7.00	65.53
Interventions and core instruction - Uses multiple data sources	39.50	65.53
Interventions and core instruction - Comfortable explaining RTI ² to parents/guardians	91.50*	65.53
Tier II and Tier III interventions - Uses multiple data sources	46.50	65.53
Tier II and Tier III interventions - Comfortable explaining RTI ² to parents/guardians	98.50*	65.53
Uses multiple data sources - Comfortable explaining RTI ² to parents/guardians	52.00	65.53

Note. * $p < .05$

Since the overall test was significant, pairwise comparisons were examined between each variable level to determine the level of differences in the means of the construct responses. The results of the multiple comparisons indicated significant differences between the following four RTI² construct pairs: Tier II and Tier III interventions – Comfortable explaining RTI² to parents/guardians, Interventions and core instruction – Comfortable explaining RTI² to parents/guardians, Addresses individual needs – Tier II and Tier III interventions and Addresses individual needs – Interventions and core instruction.

Research Question 2. In order to address the second research question, “Is the perception of implementing the five-strand framework of RTI² by principals influenced by the school district they belong to?”, a one-sample *t*-test was conducted comparing the PPI values of every district in the project. The summary of *t*-test results is displayed in Table 4. In addition, normality validation is displayed in Table 5, and a descriptive summary of average PPI scores are displayed in Table 6.

Table 4

Summary of one-sample t-test for PPI scores among districts

	<i>t</i>	<i>df</i>	<i>P</i>
PPI Score	45.70	4	.001*

Note. **p* < .001

A one-sample *T*-test was conducted comparing the PPI values of each district. The average PPI score among the districts was 0.684 for all 5 strands, and the *t*-test revealed a highly significant difference in PPI values among districts (*p* < 0.001, Table 4). Indicative of these results, the researcher fails to reject the null hypothesis for research question 2: There is a statistically significant difference in average perception of RTI² implementation by principals among the five school districts.

Table 5

Test of Normality (Shapiro-Wilk)

	<i>W</i>	<i>p</i>
PPI Score	0.921	0.536

Note. **p* < .05

Prior to the analysis, the assumptions of normality and homogeneity of variance were assessed. A Shapiro-Wilk test was conducted to determine whether the five statements of RTI² could have been produced by a normal distribution of data (Razali & Wah, 2011). There is not enough evidence to suggest that the data did not differ significantly from a normal distribution ($W = 0.921, p = 0.536$). However, the mean of any random variable will be approximately normally distributed as sample size increases, according to the Central Limit Theorem (CLT) (Hinkle, Wiersma, & Jurs, 2003). Therefore, with a sufficiently large sample size ($n > 50$), deviations from normality will have little effect on the results (Stevens, 2009). Significant results, $p < .05$, suggest a deviation from normality, ($p = .536 > .05$).

Table 6

Descriptive Statistics of PPI Score

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>
PPI Score	5.000	0.684	0.033	0.015

Descriptive statistics were conducted for PPI Scores. A sample consisted of five school districts ($n = 5$). The mean PPI score for the sample was 0.68 ($M = 0.68$; $SD = 0.033$), respectively.

Research Question 3. To address the third research question, “Do district demographic criteria (such as TVAAS rating, percentage of direct disability status or socioeconomic status) influence the perception of RTI² implementation in principals?”, three separate linear regression analyses were performed. A linear regression is used when we wish to predict the value of a variable based on the value of another variable. The district PPI score served as the dependent variable, and TVAAS score, percent district disability status, and percent economically disadvantaged served as the independent variables for the three regressions, respectively. Summaries for each linear regression are displayed in Tables 7-15.

Table 7

Linear model summary between district PPI and TVAAS scores.

Model	<i>R</i>	<i>R</i> ²	<i>Adjusted R</i> ²	<i>RMSE</i>
1	0.811	0.658	0.544	0.023

b. Predictors: (Constant), TVAAS Scores; $p < .05$.

Table 7 is a linear model summary showing the relationship between district PPI and TVAAS. RMSE is the Root Mean Square Error of the residuals and is a measure of the distance from the line of regression to the data points. In this linear relationship, as displayed in Table 7, Correlation Coefficient $r = .811$ indicates a strong magnitude (Merrigan & Huston, 2008). The coefficient, r , is the Pearson product-moment correlation coefficient; whereas, R^2 is coefficient of determination (Fields, 2013). Likewise, the proportion of shared variance between district PPI and TVAAS scores is 65%, ($R^2 = .65$), indicating a moderate association between the two variables (Merrigan & Huston, 2008). That is 65% of variance is shared or common amongst the two variables of PPI and TVAAS scores. Therefore, this amounts to 35% of variation in the data being unexplained, or random. Variation in the dependent variable is 65%, and this variation in the dependent variable is explained by variation in the independent variable.

Table 8, as displayed below is an ANOVA table that describes the overall variance accounted for in the model. Similarly, Table 9 presents the standard regression model to provide information on the effects of the predictor variable.

Table 8

Results of ANOVA – PPI and TVAAS Score

Model		<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>P</i>
1	Regression	0.003	1	0.003	5.764	0.096 ^b
	Residual	0.002	3	5.118e-4		
	Total	0.004	4			

b. Predictors: (Constant), TVAAS Score; $p < .05$.

The results of the ANOVA test, as indicated in Table 8 were conducted to describe the overall variance accounted for in the model. The predictor variable for the model is the TVAAS score for each district, and the outcome variable is the district PPI. The proportion of variance in the PPI scores that is explained by the TVAAS scores is investigated in this model. Table 8 is the significance test on the overall model determined whether the fit of the intercept-only model and the model with independent variables are equal. The distribution is $F(1, 3)$, and the probability of observing a value greater than or equal to the F -statistic of 5.764 is 0.096. Whereas $p < .05$, ($p < .096$), the null hypothesis is accepted. Hence, this regression model does not provide a better fit than the intercept-only model. The results indicate that the proposed model is not statistically significant ($F(4) = 5.764, p = 0.096$).

Table 9

Coefficients of Composite TVAAS Score

Model	Unstandardized	Standard Error	Standard	t	p	95% CI	
						Lower	Upper
1 (Intercept)	0.545	0.059		9.224	0.003*	0.357	0.733
Composite TVAAS Score	0.030	0.013	0.811	2.401	0.096	-	0.071
						0.010	

a. Dependent Variable: PPI Scores; * $p < .001$

Table 9 is the p -value test to determine the hypothesis that the slope intercept is zero, * $p < .001$ which makes it significant for a slope intercept of zero. Of the three independent variables, district TVAAS score was the best predictor of differences in PPI scores, explaining 65.8% of PPI variance, though the model still did not meet the accepted significance alpha threshold of $\alpha=0.05$ ($p = 0.096$, Table 9). Additionally, the slope for the Composite TVAAS scores is 0.030, and the y -intercept is 0.545; thus, the equation for using Composite TVAAS scores to predict the district PPI is ($y = 0.030x + 0.545$). The results shown in Table 9 indicate that the composite TVAAS score is not a statistically significant predictor of district PPI.

The second linear regression as shown in tables 10-12, examined the relationship between district PPI and Disability status. Table 10 contains the linear model summary demonstrating the relationship between district PPI and Disability status. Table 11 provides the results of the ANOVA testing with regard to the proposed model. Likewise, Table 12 displays the coefficients table showing the changes among the variables and whether the coefficients are different from zero.

Table 10

Linear model summary between district PPI and Disability Status.

Model	<i>R</i>	<i>R</i> ²	<i>Adjusted R</i> ²	<i>RMSE</i>
1	0.431	0.18	-0.085	0.035

a. Predictors: (constant), Disability Status; $p = 0.09$

Table 10 is a linear model summary showing the relationship between district PPI and disability status. RMSE is the Root Mean Square Error of the residuals and is a measure of the distance from the line of regression to the data points. In this linear relationship, as displayed in Table 10, Correlation Coefficient $r = .431$ indicates a strong magnitude (Merrigan & Huston, 2008). The coefficient, r , is the Pearson product-moment correlation coefficient; whereas, R^2 is coefficient of determination (Fields, 2013). The proportion of shared variance between district PPI and Disability Status is 18%, ($R^2 = .18$), indicating a low association between the two variables (Merrigan & Huston, 2008). That is 18% of variance is shared or common amongst the two variables of PPI and Disability Status. Therefore, 82% of variation in the data is unexplained or random. Variation in the dependent variable is 18% and this variation in the dependent variable is explained by variation in the independent variable. Thus, 18% of the district PPI scores are explained by the Disability Status.

Table 11, as displayed below is an ANOVA table that describes the overall variance accounted for in the model. Likewise, Table 12 presents the standard regression model to provide information on the effects of the predictor variable.

Table 11

Results of ANOVA – PPI and Disability Status

Model		<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>p</i>
1	Regression	8.337e-4	1	8.337e-4	0.685	0.469
	Residual	0.004	3	0.001		
	Total	0.004	4			

a. Predictors: (constant); Disability status, $p = 0.09$

The results of the ANOVA test, as indicated in Table 11 were conducted to describe the overall variance accounted for in the model. The predictor variable for the model is the Disability status for each district, and the outcome variable is the district PPI. The proportion of variance in the PPI scores that is explained by the Disability status is investigated in this model. Table 11 is the significance test on the overall model which determined whether the fit of the intercept-only model and the model with independent variables are equal. The distribution is $F(1,3)$, and the probability of observing a value greater than or equal to the F -statistic of .469 is 685. Whereas $p > .05$, ($p = .0.469$), the null hypothesis is accepted. Hence, this regression model does not provide a better fit than the intercept-only model. The results indicate that the proposed model is not statistically significant ($F(4) = .685, p = 0.469$).

Table 12

Coefficients of Composite Disability Status

Model	Unstandardized	Standard Error	Standard	t	p	95% CI	
						Lower	Upper
(Intercept)	0.748	0.078		9.570	0.002*	0.499	0.966
1							
Percent Disability	-0.005	0.006	-0.431	-0.828	0.469	-0.024	0.014

b. Dependent variable: PPI Scores; * $p < .001$

Table 12 is the p -value test to determine the hypothesis that the slope intercept is zero. * $p < .001$ which makes it significant for a slope intercept of zero. Of the three independent variables, district Disability status explained 18% of PPI variance, though the model still did not meet the accepted significance alpha threshold of $\alpha=0.05$ ($p = 0.469$, Table 12). The slope for the Disability status is 0.005, and the y -intercept is 0.748, thus the equation for using Disability status to predict the district PPI is ($y = 0.005x + 0.748$). The results shown in Table 12 indicate that the Disability status is not a statistically significant predictor of district PPI.

The third linear regression as shown in tables 13-15, examined the relationship between district PPI and Economic Disadvantaged status. Table 13 contains the linear model summary showing the relationship between district PPI and Economically Disadvantaged status. Table 14 shows the results of the ANOVA testing the proposed model. Likewise, Table 15 provides the coefficients table showing the changes among variables and whether the coefficients are different from zero.

Table 13

Linear model summary between district PPI and Economically Disadvantaged Status.

Model	<i>R</i>	<i>R</i> ²	<i>Adjusted R</i> ²	<i>RMSE</i>
1	0.638	0.407	0.209	0.030

a. Predictors: (constant); Economically Disadvantaged, $p < .001$

Table 13 is a linear model summary showing the relationship between district PPI and Economically Disadvantaged variables. RMSE is the Root Mean Square Error of the residuals and is a measure of the distance from the line of regression to the data points. In this linear relationship, as displayed in Table 13, Correlation Coefficient $r = .638$ indicating a strong magnitude (Merrigan & Huston, 2008). The coefficient, r , is the Pearson product-moment correlation coefficient; whereas, R^2 is coefficient of determination (Fields, 2013). The proportion of shared variance between district PPI and Economically Disadvantaged Status is 40%, ($R^2 = .408$), indicating a low association between the two variables (Merrigan & Huston, 2008). That is, 40% of variance is shared or common amongst the two variables of PPI and Economically Disadvantaged status. Therefore, 60% of variation in the data is unexplained or random. It is not shared. Variation in the dependent variable is 40% and this variation in the dependent variable is explained by variation in the independent variable. Thus, 60% of the district PPI scores are explained by the Economically Disadvantaged status.

Table 14, as displayed below is an ANOVA table that describes the overall variance accounted for in the model.

Table 14

Results of ANOVA – PPI and Economically Disadvantaged Status

Model		<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>p</i>
1	Regression	0.002	1	0.002	2.058	0.247
	Residual	0.003	3	8.868e-4		
	Total	0.004	4			

a. Predictors: (constant); Economically Disadvantaged, $p < .001$

The results of the ANOVA test, as indicated in Table 14 was conducted to describe the overall variance accounted for in the model. The predictor variable for the model is the Economically Disadvantaged status for each district, and the outcome variable is the district PPI. The proportion of variance in the PPI scores that is explained by the Economically Disadvantaged status is investigated in this model. Table 14 is the significance test on the overall model which determined whether the fit of the intercept-only model and the model with independent variables are equal. The distribution is $F(1,3)$, and the probability of observing a value greater than or equal to the F -statistic of 2.058 is 0.247. Whereas $p > .05$, ($p = 0.247$), the null hypothesis is accepted. Hence, this regression model does not provide a better fit than the intercept-only model. The results indicate that the proposed model is not statistically significant ($F(4) = 2.058, p = 0.247$).

Table 15 provides the coefficients table showing the changes among variables and whether the coefficients are different from zero.

Table 15

Coefficients of Composite Economically Disadvantaged Status

Model	Unstandardized	Standard Error	Standard	t	p	95% CI	
						Lower	Upper
1 (Intercept)	0.703	0.018		38.08	0.001*	0.644	0.761
Econ. Dis. Status	-0.001	8.558	-0.638	-1.434	0.247	-0.004	0.001

b. Dependent variable: PPI scores, * $p < .001$

Table 15 is the p-value test to determine the hypothesis that the slope intercept is zero. * $p < .001$ which makes it significant for a slope intercept of zero. Of the three independent variables, Economically Disadvantaged status explained 40% of PPI variance, though the model still did not meet the accepted significance alpha threshold of $\alpha=0.05$ ($p = 0.247$, Table 15). The slope for the Economically Disadvantaged status is -0.001, and the y-intercept is 0.703, thus the equation for using Economically Disadvantaged status to predict the district PPI is ($y = -0.001x + 0.703$). The results shown in Table 15 indicate that the Economically Disadvantaged status is not a statistically significant predictor of district PPI.

Q-Q plots of the standardized residuals for the regressions are shown in Figure 1. Figure 1 provides the graphic representation that the small sample size did not appear to influence the normality of distribution.

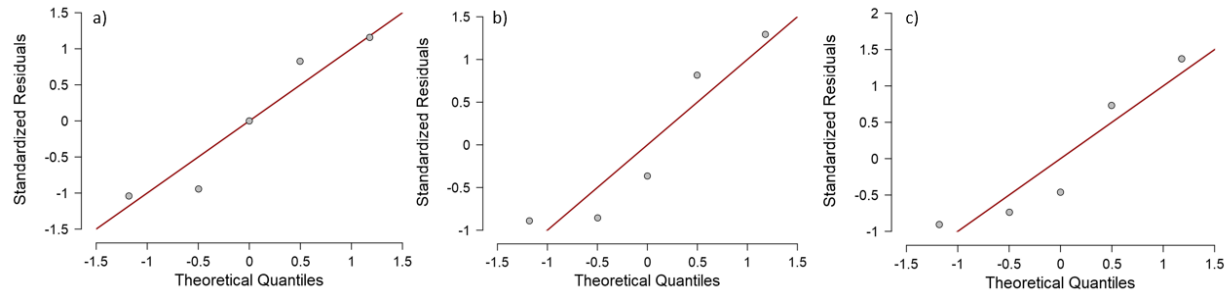


Figure 1. Q-Q plot of residuals for PPI compared to a) TVAAS, b) Percent Disability and c) Percent Economically Disadvantaged.

A Q-Q plot is a graphic representation to assist in assessing whether a set of data came from a normal distribution. Thus, the Q-Q plot provides a comparison of the sample quantiles to the corresponding theoretical quantiles (Hinkle et al., 2003). Each scatterplot in Figure 1 graphs one of the demographic data variables against a quantile score calculated from a theoretical distribution. The quantile-quantile plot analyses of the linear regressions in Tables 7, 10, and 13 respectively do not suggest a deviation from a normal distribution. The data-point residuals do not depart from a straight line display of a normal distribution.

Percent disability and percent economically disadvantaged for each district do not appear to influence district PPI scores ($p = 0.469$ and $p = 0.247$, Tables 12-14, respectively). Though the considerably small sample size ($n = 5$ for each regression) did not appear to influence normality of residuals (Figure 1), it very likely increased the error rate of the linear regression models enough to mask any potential significance. Though, given our current model we cannot reject the null hypothesis “No district demographic criteria affect principals’ perceptions of RTI² implementation.”. Increasing sample size through the inclusion of other municipal districts in TN may increase the likelihood of significant findings. Increasing the predictor variables in a single regression model may also contribute to increased R^2 and/or decreased p values, as we will investigate in the next research question.

Research Question 4. To address the fourth research question “Does a combination of district demographics better predict the perception of RTI² implementation among school districts than a single demographic factor alone?” a multiple linear regression analysis was conducted. The district PPI scores served as the dependent variable and combinations of TVAAS, percent disability status and percent economically disadvantaged status for each district served as the independent predictor variables in the same regression model.

A multiple linear regression is a predictive analysis where there is one dependent variable and multiple independent variables. The multiple regression model with the highest significance and coefficient of determination statistic is displayed in Table 16. The Q-Q plot of residuals for this regression is shown in Figure 2.

Table 16

Linear model summary between district PPI with TVAAS and Economically Disadvantaged.

Model	<i>R</i>	<i>R</i> ²	<i>Adjusted R</i> ²	<i>RMSE</i>
1	0.954	0.910	0.821	0.014

a. Predictors: (constant); TVAAS and Economically Disadvantaged status, *p* = .090

Table 16 is a multiple linear model summary showing the relationship between district PPI and TVAAS with Economically Disadvantaged variables. RMSE is the Root Mean Standard Error of the residuals and is a measure of the distance from the line of regression to the data points. In this linear relationship, as displayed in Table 16, Correlation Coefficient *r* = .954 indicating a strong magnitude (Merrigan & Huston, 2008). The coefficient, *r*, is the Pearson product-moment correlation coefficient; whereas, *R*² is coefficient of determination (Fields, 2013). The proportion of shared variance between district PPI and TVAAS with Economically

Disadvantaged status variables is 91%, ($R^2 = .910$), indicating a high association between the two variables (Merrigan & Huston, 2008). That is 91% of variance is shared or common amongst the two variables of PPI with TVAAS and Economically Disadvantaged Status. Therefore, 9% of variation in the data is unexplained or random. It is not shared. Variation in the dependent variable is 91%, and this variation in the dependent variable is explained by variation in the independent variables. Thus, 91% of the district PPI scores are explained by the TVAAS with Economically Disadvantaged status variables.

Table 17 displays the p -value test to determine the hypothesis that the slope intercept is zero.

Table 17

Coefficients of Composite PPI with TVAAS and Economically Disadvantaged

Model	Unstandardized	Standard Error	Standard	t	p	<u>Collinearity Statistics</u>	
						Tolerance	VIF
1 (Intercept)	0.196	0.151		1.297	0.324		
Comp. TVAAS	0.095	0.028	2.535	3.351	0.079	0.078	12.76
% Econ. Dis. Status	0.003	0.001	1.795	2.374	0.141	0.078	12.76

b. Dependent variable: PPI scores, $*p < .001$

Table 17 is the p -value test to determine the hypothesis that the slope intercept is zero. $p > .001$ which makes it not significant for a slope intercept of zero. The slope for the Economically Disadvantaged status is 0.003, the slope for TVAAS scores is 0.095, and the y -intercept is 0.196. Thus, the equation for using Economically Disadvantaged status to predict the

district PPI is ($y = -0.003x + 0.141$). The equation for Composite TVAAS to predict the district PPI is ($y = 0.095x + 0.141$).

Q-Q plots of the standardized residuals for the regression is shown in Figure 2.

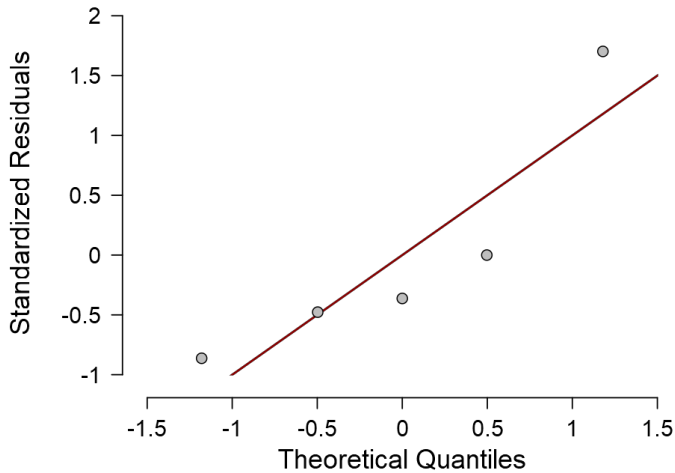


Figure 2. The Q-Q plot of residuals between the district PPI scores with TVAAS and Economic Disadvantaged status variables.

A Q-Q plot is a graphic representation to assist in assessing whether a set of data came from a normal distribution. Thus, the Q-Q plot provides a comparison of the sample quantiles to the corresponding theoretical quantiles. The quantile-quantile plot (Q-Q plot) analysis of this regression displays a normal distribution of data-point residuals (Figure 2). The scatterplot graphs the demographic data variables against a quantile score calculated from a theoretical distribution. The quantile-quantile plot analysis of the linear regression in Table 16 does not

suggest a deviation from a normal distribution. The residuals on the plot do not suggest a deviation from a normal distribution in any systematic manner.

Table 18 as displayed below is an ANOVA table that describes the variance accounted for in the overall model.

Table 18

ANOVA Results for Regression Model

	Model	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
1	Regression	0.004	2	0.002	10.15	.090
	Residual	4.021e-4	2	2.011e-4		
	Total	0.004	4			

a. Predictors: (constant); TVAAS, Economically Disadvantaged, $p < .05$

The results of the test, as indicated in Table 18 were conducted to describe the overall variance accounted for in the model. The predictor variables for the model are the Economically Disadvantaged status and TVAAS for each district, and the outcome variable is the district PPI. The proportion of variance in the PPI scores that is explained by the Economically Disadvantaged status and TVAAS scores is investigated in this model. Table 18 is the significance test on the overall model which determined whether the fit of the intercept-only model and the model with independent variables are equal. The distribution is $F(2,2)$, and the probability of observing a value greater than or equal to the F -statistic of 10.15 is 0.090. The model summary shows that combining TVAAS with percent economically disadvantaged variables leads to a strong positive correlation that explains a considerable portion of PPI variance ($r = 0.954$, $R^2=0.910$, Table 16).

However, while the coefficient p-value for the TVAAS score was found to be more significant than any single regression model investigated in research question 3 ($p = 0.07$), it still did not achieve the alpha threshold level of $\alpha = 0.05$, nor did the whole model p-value ($p = 0.09$, Table 18). Additionally, multicollinearity diagnostics discovered a high level of collinearity between the TVAAS and percent economically disadvantaged variables, potentially violating an assumption of a multiple linear regression ($VIF = 12.76$, Table 17). Indeed, when comparing the TVAAS to percent economically disadvantaged variables in a Pearson correlation analysis, they were found to be highly and significantly correlated ($p = 0.010$, Table 19, Figure 3).

Table 19 as shown below is a Pearson Correlation Coefficient to assess the relationship between the variables.

Table 19

Pearson Correlation between TVAAS and Economically Disadvantaged variables.

		Pearson's r	p
Composite TVAAS Score	- Percent Economically Disadvantaged	-0.960	*0.010

Note. * $p < .05$

A Pearson product-moment correlation coefficient was computed to assess the strength of the relationship between the TVAAS score variable and the Economically Disadvantaged status variable. The Pearson r is an index of the linear relationship between two variables (Hinkle et al., 2003). There was a strong, negative linear relationship between the two variables TVAAS scores and percent Economically Disadvantaged, $r = -0.960$, $n = 5$, $p = 0.010 < p \leq .05$. The bivariate correlation measure between the TVAAS and Economically Disadvantaged variables. $p = 0.010 < p \leq .05$.

Figure 3 is a correlation plot that is used to plot the data points for two variables.

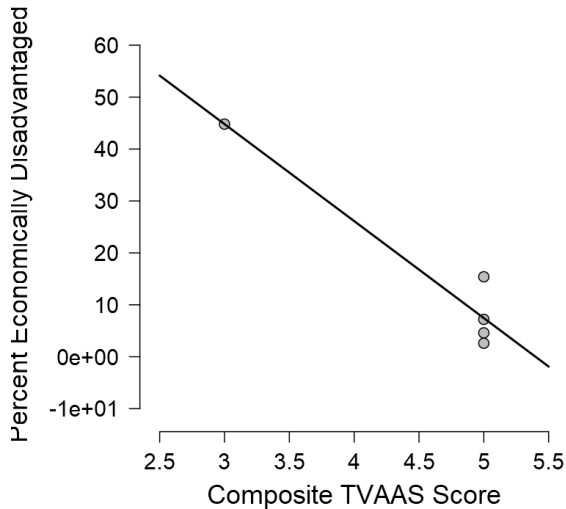


Figure 3. Correlation Plot between the TVAAS and Economically Disadvantaged variables.

A correlation plot is a graphic display of the relationship between two numerical variables. Since $r = -.0960$ there is a strong negative linear, linear relationship between the two variables. Figure 3 shows a downward sloping line which is indicative of a negative linear relationship. As one variable increases, the other variable decreases (Hinkle et al., 2003).

Based on the lower p -value of the reduced multiple regression model (Table 16) than any single model investigated in research question 3, conditional acceptance of the alternative hypothesis of research question 4: “A specific combination of district demographic criteria combine to predict the variance in perception of RTI² implementation among school districts better than a single factor,” is possible. However, this model was still not statistically significant.

It is likely that a larger sample size that encompasses more than $n = 5$ districts would result in the proposed reduced model crossing the $\alpha = 0.05$ threshold of significance.

Summary

Chapter 4 reintroduced the research questions, outlined the data collection and analysis protocol, including the procedure for obtaining summary statistics to calculate the means, creating the principal perception of RTI² index, PPI, and presented the results in order of research question. It was observed that the results of the Friedman rank sum test were significant (Table 2) demonstrating significant differences in the median values of the 5 RTI² constructs. As revealed in the analysis, the results of the pairwise comparisons also indicated significant differences in four variable pairs; thus, the null hypothesis for research question 1 was rejected. Insofar as the PPI values differed significantly at the district level (Table 4), the null hypothesis for research question 2 was rejected. It should be noted that no district demographic criteria alone could serve to explain those differences in our dataset (Tables 7-12). Combining TVAAS with Economically Disadvantaged status at the district level created a regression model that better explained the PPI than any single regression model, but still could not reach the alpha level of $\alpha = 0.05$ (Table 13). It is likely that the relatively small sample size of $n = 5$ contributed to the lack of significance, and future projects that include a greater number of districts may indeed observe a significant relationship.

With respect to the demographic variables of TVAAS and Economically Disadvantaged, TVAAS was demonstrated to have a significant and highly negative relationship with Economically Disadvantaged status at the district level (Table 16). This served to violate the multicollinearity assumption of our multiple linear regression, but the discovered relationship

merits further investigation in future projects. Chapter 5 will continue with an expanded interpretation of results, in addition to how the findings can be applied in the field.

Chapter 5

Discussions, Conclusions, and Recommendations

Meeting the needs of all learners and increasing student achievement are challenges that schools face daily (Swindlehurst et al., 2015). These struggles have contributed to the conceptualization and state-wide implementation of RTI² (McKinney & Sneed, 2017). Implementing RTI² is tasked to administrators entrusted with leading schools and districts, and research has shown that their leadership is crucial for school success (TERA, 2018). Likewise, the way principals perceive RTI² practices within their schools provides us with valuable insight into the successes and challenges of the initiative.

The Schoolwide Applications Model offers principals a fidelity estimator for implementation and accomplishing an RTI school reform (Sailor, 2009). Monitoring progress toward implementation through SAM and research studies such as this can assist with transforming school structures to support full implementation of RTI² (Dunn, 2012).

Within this chapter, there will be a reiteration of the purpose and nature of the study, interpretation of the findings of the research, as well as a discussion of the rationale for conducting the study. A discussion about the conclusions of the study includes the importance of the school leader's role in the implementation of any new policy or program (Sansosti et al., 2010). Additionally, the discussion incorporates the implications of the research including school and district improvement and student achievement. The limitations of the study are reviewed, and recommendations are provided for specific areas of future research. The chapter concludes with an elaboration about the role of this study in the contribution to the research on RTI². The findings of

this research concerning the successes and challenges for each district in RTI² can provide fidelity of implementation data, which can be utilized for future planning at the district as well as the state level.

Purpose and Nature of the Study

The purpose of this study was to investigate the perceptions of principals regarding RTI², and the successes and challenges in their schools. The results are of note to researchers, educational leaders, and policymakers for informative purposes concerning the current state of implementation and fidelity to the framework. The mandated statewide implementation of the RTI² framework and its relative youth has led to a need for further research. Furthermore, the brief period of existence of the municipal school districts serving as the basis of this study contribute to a lack of research base and consequently the need for an analysis of the degree to which RTI² has been implemented in these 5 municipal school districts. The contextual factors of the period of existence of the 5 school districts, the limited presence of the RTI² policy initiative, and the requirements in ESSA identified a need to capture the status of RTI² which could contribute to a larger body of literature on statewide implementation.

For this study, quantitative methodology in a descriptive non-experimental nature drawing upon a secondary analysis of two archival data sets derived from the Tennessee Department of Education was utilized. The mathematical analyses of objectively defined variables made it quantitative in nature. The descriptive nature of the study sought to indicate general tendencies in the data and a comparison of the variables (Cresswell, 2014). The SAM served as a conceptual framework for this study and the implementation of RTI².

The key findings of the study revealed significant differences in the median values among the means, $\chi^2(4, N = 109) = 93.13, p < .001$ indicating significant differences between the ranks of principals in their perceptions of the five-strand framework of RTI² as calculated through the Friedman Rank Sum Test. The Kendall coefficient of concordance of .21 indicated fairly strong differences in RTI² implementation among the five constructs. Pairwise comparisons indicated significant differences in the four construct pairs of Tier II and Tier III interventions - Comfortable explaining RTI² to parents/guardians, Interventions and core instruction - Comfortable explaining RTI² to parents/guardians, Addresses individual needs - Tier II and Tier III interventions and Addresses individual needs – Interventions and core instruction. The significant differences indicate that we accept the alternate hypothesis of statistically significant differences in the perceptions of principals among the five-strand framework of RTI².

The findings also included district PPI values that were significantly different at the district level ($p < .001$, Table 4), however no demographic criteria alone could explain these differences. The average PPI value for all districts was 0.684, and despite the sample size, the distribution was normal. Similarly, these findings reveal that we accept the alternative hypothesis of a statistically significant difference in the average perception of RTI² implementation by principals among the five municipal districts. Three separate linear regressions were conducted on the demographic variables to determine which variable was the best predictor of district PPI. The findings revealed TVAAS as the best predictor explaining 65.8% of PPI variance; however, the finding did not meet the threshold of significance ($p = 0.096 > 0.05$, Table 8). The district disability status

demographic and the socioeconomic demographic scores also did not show significant results and were $p = 0.469$ and $p = 0.247$ respectively. Though the results did not indicate significance, we cannot reject the null hypothesis, the influence of the small sample size very possibly contributed to the lack of significance.

A multiple regression investigated whether a combination of demographics was a better predictor of district PPI values than a single demographic factor. The results revealed that the combination of TVAAS scores and percent economically disadvantaged showed a strong positive correlation to explain a significant portion of district PPI variance ($r = 0.954$, $R^2=0.910$, $p=.09>\alpha=.05$); however, it still did not fall below the threshold of alpha. It is worth noting that while the demographic factors did not rise to the level of significance, but based on the lower p -value of the multiple regression model ($p=.079$) a conditional acceptance of the alternative hypothesis was concluded. However, multicollinearity diagnostics revealed collinearity between TVAAS and percent economically disadvantaged ($VIF=12.76$), and a correlation analysis found them to be highly and significantly correlated ($p=.010$).

Interpretation of the Findings

The results of this study contribute to the body of research and knowledge concerning the overarching themes of successes and concerns of RTI² implementation. As discussed previously, more research was needed to produce additional data surrounding the actual implementation efforts of RTI² in schools (Maier et al., 2016). Without such data, it is difficult to assess the fidelity of implementation and make necessary adjustments. As expounded upon in Ch. 2, previous research has suggested that

the preponderance of educational change efforts bring about limited implementation success due to lack of knowledge by leaders (Sansosti et al., 2010).

The findings in this study indicate a statistically significant difference in principals' perception of RTI² implementation between the five-strand framework of RTI² and according to their respective school district. From this finding, it can be interpreted that factors within each district contribute to the significant differences in implementation. These results are in accordance with the extant research by Sansosti et al., (2010) which revealed significant differences in principals' perceptions of overall RTI implementation and among the RTI components. The significant difference is also aligned with other research studies cited in the literature (Buckner, 2013; Patterson, 2016; Printy & Williams, 2015). Subsequently, this difference in implementation corresponds to the critical component of SAM allowing for the implementation of RTI² at each school's own pace (Sailor, 2009).

The literature also noted the importance of school leadership to the success and sustainability of RTI² which is confirmed by the findings of this research (Bernhardt & Hebert, 2016; Maier et al., 2016; McKinerney & Elledge, 2013; TDOE, 2018). The significant difference in implementation between the five-strand framework and among the districts in this study can be viewed as an example of the literature espousing the importance of school leadership in education reform. Furthermore, the SAM model serves as a strong rationale for a problem-solving approach to these significant differences that is inclusive all of district stakeholders.

With respect to the influence of demographic variables, the results of this study noted that no single demographic variable significantly predicted the perceptions of principals regarding RTI² implementation. While TVAAS scores were the largest predictor, they still did not achieve significance. The combination of TVAAS scores and economically disadvantaged criteria explained more variance than any other variable combination but was still not a significant predictor. Previous research by McKinney and Snead (2017) showed no evidence that TVAAS scores had any influence on practitioners' perceptions of RTI². Other literature by Cowan and Maxwell (2015) does conclude; however, that systemic features should be considered as an influence on RTI implementation. Furthermore, literature from the TDOE (2018) regarding RTI² expounds upon findings that schools with fewer students in the lowest-performing categories likewise have stronger support for RTI² implementation among teachers and principals.

As elaborated upon in Chapter 2, the conceptual framework for this study was the Schoolwide Application Model, a school reform model focused on achievement for all students (Sailor, 2009). Similar to the finding of significant differences in principals' perceptions among the districts, SAM provides schools the ability to accomplish the RTI transformation at their own pace. The literature on SAM outlines the challenge that turnover and inconsistency in key leadership positions has on the schoolwide RTI model, which correlates with the variance in perceptions of the principals amongst the districts. The significant variance between the districts leads one to the interpretation regarding the possibility of turnover and movement in administrators of the districts, as well as other district factors.

The literature on SAM also expounds upon the focus on school culture as a critical variable of SAM in accomplishing systems change. The inclusion of demographic variables in this study and the findings of their potential significance in the prediction of principals' perceptions correlate with this feature of the model. The focus on the principals' perceptions of the implementation of the framework as a method to measure fidelity correlates with the fidelity estimator component of SAM.

Further Limitations of the Study

This study evolved from a desire to gain a better understanding of the perceptions of principals regarding the implementation of RTI² in 5 municipal districts in the western part of TN. It is essential to collect data from the school leaders implementing the innovative state-wide framework to allow for data-based decisions at both the local and state level with respect to refinements to the program (TDOE, 2018). Using the RTI² constructs, I wished to contribute knowledge that would enable policymakers and practitioners to assess successes and problems of the framework in districts with similar demographics and characteristics.

The findings of this study represent principals' perceptions of only 5 municipal districts in western TN. Given the small number of districts in the study, it has limited generalizability. Results obtained may not be representative of the implementation of districts existing for a much lengthier period of time and those having a different population such as urban districts.

The small sample size did appear to limit the results in the linear regression analyses in research question 2. Though it did not affect the normality of residuals, it very

likely increased the error rate of the linear models enough to mask any potential significance. Increasing the sample size may increase the likelihood of significant results.

An additional limitation was revealed through the multiple linear analysis for research question 4. The multicollinearity diagnostics revealed a high level of correlation between TVAAS scores and percent economically disadvantaged variables, potentially violating an assumption of the multiple linear regression (VIF=12.76, Table 14). In a correlation analysis, the two variables were found to be highly and significantly correlated ($p=0.010$, Table 16, Figure 3).

The SAM model (Sailor and Roger, 2007) is used as only a conceptual framework for this study. As such, the conceptual framework is aligned with specific RTI² components assessed within the study. School districts within this study are not identified as SAM schools. Schools within this study are not identified as implementers of specific SAM approaches. The SAM model serves as a strong rationale for a problem-solving approach that is inclusive all of district stakeholders.

The respondents to the original TN Educator Survey were voluntary; thus, there is a possibility that principals chose not to participate in this survey which could have affected the results. The results of this study are based on the self-reported data from the respondents, and the degree to which the responses are accurate cannot be determined.

Recommendations for Future Research

The results of this study suggest that the perception of principals regarding RTI² implementation varies within the municipal districts. Further analysis can continue to assess the fidelity to the framework within schools. Recommendations for further research are offered on RTI².

Further research is desirable following the implementation through a more longitudinal study in order to examine the perceptions of principals over a more extended period of time. Secondary data analysis utilizing the principals' answers on TN Educator Survey would be beneficial as researchers would be able to analyze the successes and concerns about implementation and provide data beyond a single year. McKinney and Snead (2017) remind us that individuals progress at different rates when implementing an innovation, and some individuals require more time to embrace it.

A second recommendation for future research is the inclusion of additional school districts. Expanding the sample to include other districts across the state of Tennessee would aid in determining if the level of implementation varies. Districts with similar economic and disability demographics as well as those that vary will assist in determining if the perception of implementation is affected. Along with the inclusion of more districts, the various school levels can be studied through separation into elementary, middle, and high school.

Research is recommended investigating whether the percentage of students qualifying for special education services has changed during a particular frame of time in a more longitudinal analysis. Even though the primary reason for the mandated use of the framework is not solely for special education referrals, it is still a significant force in implementation (Bruner, 2016). Further analysis of special education qualification data and principals' perceptions can provide additional data about the overarching question of successes and concerns as they relate to interventions.

Further investigation and analysis into the effects that demographic criteria have on the levels of implementation of RTI² insomuch as it relates to the prediction of the

principals' perceptions would be useful. The inclusion of the disability demographic separated by race will provide additional avenues to research as it relates to the implementation of RTI² and the special education racial balance.

Conducting further research with the inclusion of administrator's perceptions of RTI² through primary data collection in these 5 municipal districts is recommended. Performing a mixed-methods study would continue to build an in-depth research base for these districts. This would provide the district leadership further data to explore before making crucial decisions about RTI² and its implementation.

An analysis of perceptions of principals paralleled to district administrators will yield another avenue of data surrounding leadership of the program and is desirable. Previous analysis has revealed that administrators' leadership is crucial for school success (TERA, 2018). This applies to district-level as well as school-level leadership. Collecting data about the implementation of an initiative and sharing it with the individuals directly responsible for various levels of implementation is an avenue to improve consistency and fidelity to the framework.

Implications

This study's results provide an opportunity for a better understanding of the RTI² framework in the 5 school districts that serve as the sample. The opportunity to measure the principals' thoughts surrounding RTI² in their schools is an avenue to school improvement, policy, and social implications. The research can provide insight that impacts individuals, families, districts, and the state through an analysis of the policy's implementation status.

The belief that all students should leave K-12 education with the knowledge and skills to be positive members of society is an element of RTI² (TDOE, 2018). The critical support provided to students in preparing them for success in their life path is a fundamental role of schools and can be seen through school reforms like RTI². The RTI² guiding principle of the importance of local, district, and state leadership to ensure success for all students serves to inform us about the implications of research into leadership and implementation of the policy. Patterson (2016) concluded that one of the essential parts of RTI² is leadership.

The impact of this research on the perceptions of principals about RTI² and demographic variables can be seen at the family level as well as the student level. Family and student success are quintessentially linked, and the academic success of students can have positive economic implications for the student and their family. Research can assist with improvements in fidelity to the framework of RTI² which in turn can assist in producing students who are ready to be productive members of our state's economy. As outlined in the RTI² framework (2018), an influential culture in a high expectations environment is the model for a ready student.

Research by Regan et al., (2015) agreed with previous research positing that ample time must be spent on the early stages of implementation for a greater chance of positive results from implementing RTI². The initial impact of a new school reform innovation is a paradigm shift in thinking at all levels of leadership. In this study, the significant difference in perceptions of implementation within the school districts provides a better understanding of their current status toward full fidelity to the framework and the 5 constructs. Subsequently, there is an increased chance of school

improvement through more significant student outcomes at the school and district level. Viewing the research through the lens of the SAM model as a conceptual framework provides further insight into the implications for school improvement.

Principals play a critical role in linking an innovation like RTI² to existing school improvement. The largest variable of significance in this research emerging as TVAAS scores reinforces the relationship of achievement scores and RTI² implementation. This result shows us the importance of RTI² at the district level which has implications at the state level. The RTI² framework is designed to provide every student in the state access to and support for reaching high standards and expectations.

The statewide development and mandate of RTI² as an initiative places TN at the forefront of educational reform efforts and programs. The *Tennessee Succeeds* strategic plan is the state's answer to ESSA and includes RTI² as a critical component. Limited availability of research on RTI² enhances the impact of these results on a school, district, state, and national level. The diversified implementation and link of TVAAS scores have indications surrounding the possible need for more state-level supports in some districts. The implication for districts is research that shows a need for more oversight of district RTI² policy and assistance to schools in order to produce achievement growth intended with the passage of RTI².

The significant difference in PPI values at the district level has an impact on state policy actions. The unifying vision of success for all students upon graduation from high school is how Tennessee Succeeds. District research data informs the state in regard to the current status of implementation and can provide data for future adjustments in policy

and assistance. The oversight and monitoring of states and districts through ESSA includes RTI² implementation which can be affected through the results of this study.

Conclusion

To assist with acquiring knowledge, effective leaders of change integrate and use data about practices and results to indicate the current status of implementation of school reforms. Data must be treated as indicators of the strategy of implementation as well as accountability. Results of this study suggest that principals have a difference in perceptions of RTI² in their schools which can be inferred as a difference in the progress to full implementation of the framework. Significant differences in implementation characterize a variation of challenges and successes.

In response to the first overarching question, providing skills-based learning and interventions in addition to the core instruction ranked as the biggest successes with implementation across the districts. It can be concluded, that the perceptions of the principals indicate more success with these aspects of RTI², however there is still work to be accomplished in those areas to achieve full implementation.

To address the second overarching question, all areas of the constructs are lingering challenges due to the consistent low scores across all constructs, but the largest lingering challenge for principals in all districts is communication with parents/guardians explaining RTI² and addressing the individual needs of all students including those excelling above expectations. It can be concluded that more professional development is needed in all areas, but especially in the area of communication and meeting the needs of those students at and above grade-level. Another lingering challenge is the significant

influence on principals based on their school district, which shows that some districts have more challenges than others.

In order to realize the intended benefits of RTI² at the state level, consistent implementation through fidelity to all 5 constructs of the framework must be in place throughout each school district. Providing more professional development to principals in the areas of lingering challenge and continuous monitoring of progress toward implementation is recommended based on the results. Continuing research about RTI² can assist the state to make adaptations that will lead to tremendous successes for student achievement.

REFERENCES

- Arden, S. V., Gandhi, A. G., Edmonds, R. Z., & Danielson, L. (2017). Toward more effective tiered systems: Lessons from national implementation efforts. *Exceptional Children, 83*(3), 269-280.
- Balu, R., Zhu, P., Doolittle, F., Schiller, E., Jenkins, J., & Gersten, R. (2015). *Evaluation of response to intervention practices for elementary school reading* (NCEE 2016-4000). Retrieved from Institute of Educational Sciences website at: <https://ies.ed.gov/ncee/pubs/20164000/pdf/20164000.pdf>
- Barnes, A. C., & Harlacher, J. E. (2008). Clearing the confusion: Response-to-intervention as a set of principles. *Education and Treatment of Children, 31*(3), p. 417-431.
- Batsche, G., Elliott, J., Graden, J. L., Grimes, J., Kivaliski, J. F., Prasse, D., et al. (2006). *Response to intervention: Policy consideration and implementation*. Alexandria, VA: National Association of State Directors of Special Education.
- Bean, R. & Lillenstein, A. (2012). Response to intervention and the changing roles of schoolwide personnel. *The Reading Teacher, 65*(7).
- Berkley, S., Bender, W. N., Peaster, L. G., & Saunders, L. (2009). Implementation of response to intervention. *Journal of Learning Disabilities, 42*(1), 85-95.
- Bender, W. N., & Shores, C. (2007). *Response to Intervention: A practical guide for every teacher*. Thousand Oaks, CA: Corwin Press.
- Bernhardt, V. L., & Hebert, C. L. (2017). *Response to intervention and continuous school improvement: How to design, implement, monitor, and evaluate a schoolwide prevention system*. New York, NY: Routledge.

- Bineham, S. C., Shelby, L., Pazey, B. L., & Yates, J. R. (2014). Response to intervention: Perspectives of general and special education professionals. *Journal of School Leadership, 24*(2), 230-252.
- Bruner, W., (2016). Buckner, J. W. (2013). *Elementary principals' perception of response to intervention (rti) implementation in North Carolina: An exploratory study* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (1523717791)
- Burns, M. S., Griffin, E. P., & Snow, C. E. (1999). *Starting out right: A guide to promoting children's reading success*. Washington, DC: National Academy Press.
- Casey, A., & Howe, K. (2002). Best practices in early literacy skills. *Best Practices in School Psychology IV, 1*, 721-735.
- Castro-Villarreal, F., Rodriguez, B. J., & Moore, S. (2014). Teachers' perceptions and attitudes about response to intervention (rti) in their schools: A qualitative approach. *Teaching and Teacher Education, 40*, 104-112.
- Choi, J. H., Meisenheimer, J. M., McCarty, A. B., & Sailor, W. (2017). Improving learning for all students through equity-based inclusive reform practices: Effectiveness of a fully integrated schoolwide model on student reading and math achievement. *Remedial and Special Education, 38*(1), 28–41.
- Cowan, C. & Maxwell, G. (2015). Educators' perceptions of response to intervention implementation and impact on student learning. *Journal of Instructional Pedagogies, 16*, 1-11. Retrieved from <https://eric.ed.gov/?id=EJ1069392>
- Cresswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage.

- Darling-Hammond, Linda. (2006). No child left behind and high school reform. *Harvard Educational Review*. doi: 76.10.17763/haer.76.4.d8277u8778245404
- Davis, K. E. (2018). *Interpreting middle and high school teacher concerns toward rti implementation*. (Doctoral dissertation). Retrieved from Walden University ScholarWorks. (6197)
- Dorn, L., Layton, K. & Smith, B. (2016). *Response to intervention: A multi-tiered system for supporting students with reading difficulties*. Retrieved from <https://www.researchgate.net/publication/31.3888396>
- Dunn, J. M. (2012). *Schoolwide applications model: Implications for academic achievement in the District of Columbia public schools*. (KU ScholarWorks). Retrieved from <https://kuscholarworks.ku.edu/handle/1808/15082>
- Ehren, B. J. (2013). Expanding pockets of excellence in rti. *The Reading Teacher*, 66(6), 449-453.
- Ehren, B. J., Laster, B., Watts-Taffe, S. (2009). Creating shared language for collaboration in rti. *RTI Action Network*. Retrieved from <http://www.Rtinetnetwork.org/getstarted/buildsupports/creating-shared-language-for-Collaboration-in-rti>
- Esler, A. N., Godber, Y., & Christenson, S. L. (2002). Best practices in supporting home school collaboration. In A. Thomas & J. Grimes (Eds.), *Best Practices in School Psychology IV*, (pp. 389–411). Washington, DC: National Association of School Psychologists.
- Fields, A. (2013). *Discovering statistics using ibm spss statistics 4th edition*. Thousand Oaks, CA: Sage.

- Fixsen, D. L., Blasé, K. A., Metz, A., & VanDyke, M. (2013). Statewide implementation of evidence-based programs. *Exceptional Children, 79*, 213-230.
- Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly, 41*(1), 93-99.
- Fuchs, D., & Deshler, D. D. (2007). What we need to know about responsiveness to intervention (and shouldn't be afraid to ask). *Learning Disabilities Research Practice, 22*(2). 129-136. doi:10.1111/j.1540-5826.2007.00237.x
- Fuchs, D., & Fuchs, L. S. (2008). Professional opinion: Implementing RTI. *District Administration, 9*, 73-76.
- Fuchs, D., Fuchs, L., & Stecker, P. (2010). The “blurring” of special education in a new continuum of general education placements and services. *Exceptional Children, 76*(3), 301-323. doi: 10.1177/001440291007600304
- Fuchs, D., Fuchs, L. S., & Compton, D. (2012). Smart rti: A next-generation approach to multilevel prevention. *Exceptional Children, 78*(3), 263-279.
- Fullan, M. (2005). *Leadership and sustainability: System thinkers in action*. Thousand Oaks, CA: Corwin Press.
- Fullan, M. (2014). *The principal: Three keys to maximizing impact*. San Francisco, CA: Jossey-Bass.
- Gardenhour, A. L. (2016). *Student achievement in response to intervention groups*. (Doctoral dissertation) Retrieved from Electronic Theses and Dissertations. (4403)
- Georgia Leadership Institute for School Improvement (2015). *Leading change*

- in school culture*. Lawrenceville, GA: GRISL.
- Gersten, R., Jayanthi, M., & Dimino, J. (2017). Too much, too soon? Unanswered questions from the national response to intervention evaluation. *Exceptional Children, 83*(3), 244-254.
- Gandi, A., Marx, T., Kuchle, T., Lemons, L., & Wehby, J. (2016). *Implementing multi-level evaluations to improve intensive intervention: What did we learn?* Session presented at the OSEP Project Director's Conference, Washington, DC.
- Green, R. L. (2010). *The four dimensions of principal leadership: A framework for leading 21st-century schools*. Boston, MA: Pearson Education, Inc.
- Green, R. L. & Barclay, G. (2017). An analysis of the effects of RTI on the academic achievement of students with disabilities. *Tennessee Educational Leadership, 44*(1), 6-13.
- Greer, M. (2005). *An alternative IDEA*. Retrieved from <http://www.apa.org/monitor/apr05/idea.aspx>
- Gresham, F., VanDerHeyden, A. M., & Witt, J. C. (2005). IQ-achievement discrepancy in the identification of reading disabilities: Conceptual, measurement, and policy issues. *Learning Disability Quarterly, 32*(4), 25-45.
- Haagar, D., Klingner, J., & Vaughn, S. (2007). *Evidence-based reading practices for response to intervention*. Baltimore, MD: Brookes Publishing.
- Hakim, C. (1982). *Secondary analysis in social research; A guide to data sources with methods and examples*. London, UK: Allen and Unwin.
- Hattie, J. (2009). *Visible Learning*. New York, NY: Routledge.
- Haynes, H. A. (2012). *Multi-tiered systems of supports: An investigative study of their*

- impact on third grade reading test scores in an urban district.* (Doctoral dissertation). Retrieved from KU ScholarWorks. (12115)
- Hinkle, D. E., Wiersma, W., & Jurs, S. G. (2003). *Applied statistics for the behavioral sciences*. Boston, MA: Houghton Mifflin.
- Hope, W. C. (2002). Implementing educational policy: Some considerations for principals. *The Clearing House*, 76(1),40-43.
- International Reading Association. (2009). Working draft of guiding principles. *Reading Today*, 26(4), 1-6.
- Isbell, L. J., & Szabo, S. (2014). Understanding secondary teachers' concerns about rti: Purposeful professional communication, *The Delta Kappa Gamma Bulletin*, 80(3), 11-23.
- Jones, T. D. (2015). *An investigation of Tennessee special education administrators' implementation of response to intervention.* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (1728306124)
- Keller-Margulis, M. A. (2012). Fidelity of implementation framework: A critical need for response to intervention models. *Psychology in the Schools*, 49(4), 342-352.
- Kimmel, K. A. (2008). *The successes and challenges of response to intervention: A case study of the impact of rti implementation*, (Doctoral dissertation). Retrieved from <http://digitallibrary.usc.edu/cdm/ref/collection/p15799coll127/id/46254>. (46254)
- Kozleski, E. B., & Huber, J. J. (2010). Systemic change for rti: Key shifts in practice. *Theory Into Practice*, 49, 258-264.
- Lawrence, C. (2012). *The rti startup guide: Tools and templates for schoolwide implementation*. Thousand Oaks, CA: Sage.

- Martinez, R. S., Nellis, L. M. & Prendergast, K. A. (2006). *Closing the achievement gap series: Part II response to intervention-basic elements, practical applications, and policy recommendations*. (Policy Brief 04.8). Retrieved from Center for Evaluation and Education Policy website: http://ceep.indiana.edu/pdf/PB_V4N8_2006_EPB.pdf
- Marzano, R. J., Waters, T, & McNulty, B. A. (2005). *School leadership that works: From research to results*. Alexandria, VA: ASCD.
- Maskill, M. (2012). *Study of the effectiveness of response to intervention used in elementary school*. (Master's Theses). Retrieved from <https://commons.emich.edu/theses/449>. (449)
- Mellard, D. (2010). RTI school-based practices and evidence-based models. *Focus on Exceptional Children, 43*, 1-15.
- Merrigan, G., & Huston, C. L. (2008). *Communication research methods*. New York, NY: Oxford University Press.
- McInerney, M. & Elledge, J. (2013). *Implementing ESEA flexibility plans: Using a response to intervention framework to improve student learning-a pocket guide for state and district leaders*. Retrieved from American Institutes for Research website at https://www.air.org/sites/default/files/downloads/report/Response_to_Intervention_Pocket_Guide_2_0.pdf
- McKinney, D. & Snead, D. (2017). Assessing teacher concerns regarding response to instruction and intervention. *Journal of Inquiry and Action in Education, 9*(1), 1-11.
- McMillan, J. H. (2015). *Fundamentals of educational research*. Boston, MA: Pearson.

- Mitchell, N. P. (2018). *Investigating the lived experiences of teachers implementing response to intervention in an urban elementary school setting: A qualitative phenomenological study*. (Doctoral dissertation). Retrieved from Digital Commons at Kennesaw State University. (24)
- Murakami-Ramalho, L. S., & Wilcox, K. A. (2012). Response to intervention implementation: A successful principal's approach. *Journal of Educational Administration, 50*(4), 1-34.
- Murawski, W. W., & Hughes, C. E. (2009). Response to intervention, collaboration, and co-teaching: A logical combination for successful systemic change. *Preventing School Failure, 53*(0), 1-9.
- National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for education reform*. Washington, D.C.: U. S. Department of Education. Retrieved from <https://www2.ed.gov/pubs/NatAtRisk/risk.html>
- Palenchar, L., & Boyer, L. (2008). Response to intervention: Implementation of a statewide system. *Rural Special Education Quarterly, 27*(4), 18-26.
- Patterson, K. L. (2016). *Administrators' and teachers' perceptions of rti² processes and practices in Rutherford county middle schools*. (Doctoral dissertation) Retrieved from ProQuest Dissertations and Theses Global. (10243508)
- Prater, C. L. (2017). Implementation and effectiveness of response to intervention on reading achievement of elementary students. *Tennessee Educational Leadership, 44*(1), 14-20.
- Preston, A. I., Wood, C. L., & Stecker, P. M. (2016). Response to intervention: Where it came from and where it's going. *Preventing School Failure, 60*(3). p. 173-182.

- Prewett, S., Mellard, D., Deshler, D. D., Allen, J., Alexander, R., & Stern, A. (2012). *Response to intervention in middle schools: Practices and outcomes*, 27(3), 136-147. doi:10.1111/j.1540-5826.2012.00359.x
- Printy, S. M., & Williams, S. M., (2015). Principals' decisions: Implementing response to intervention. *Educational Policy*, 29(1), 179-205.
- Ravitch, D. (2000). *Left back: A century of failed school reforms*. New York, NY: Simon and Schuster.
- Razali, N. and Wah, Y.B. (2011) Power Comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling Tests. *Journal of Statistical Modeling and Analytics*, 2, 21-33.
- Regan, K. S., Berkeley, S. L., Hughes, M., & Brady, K. K. (2015). Understanding practitioner perception of responsiveness to intervention. *Learning Disability Quarterly*, 38(4), 234-247.
- Reschly, D. J., & Hosp, J. L. (2004). State SLD identification policies and practices. *Learning Disability Quarterly*, 27, 197-213.
- Restori, A. F., Gresham, F. M., & Cook, C. R. (2008). "Old habits die hard:" past and current issues pertaining to response-to-intervention. *The California School Psychologist*, 13, October 16, 2015.
- Rinaldi, C., Averill, O. H., & Stuart, S. (2016). Response to intervention: Educators' perception of a three-year rti collaborative reform effort in an urban elementary school, *Journal of Education*, 191(2), 43-53.
- Sailor, W. (2009). *Making rti work*. San Francisco. CA: Jossey-Bass.
- Sailor, W., & Roger, B. (2005). Rethinking Inclusion: Schoolwide Applications. *Phi*

- Delta Kappan*, 86(7), 503–509. doi:10.1177/003172170508600707
- Sansosti, F. A., Noltemeyer, A., & Goss, S. (2010). Principals' perceptions of the availability of response to intervention practices within high school settings. *School Psychology Review*, 39(2), 286-295.
- Sarason, Seymour. (1996). *Revisiting "the culture of the school and the problem of change"*. New York, NY: Teachers College Press.
- Savitz, R. S., Allington, R. L., & Wilkins, J. (2018). Response to intervention: A summary of the guidance state departments of education provide to schools and school districts, *The Clearing House: A Journal of Educational Strategies, Issues, and Ideas*, 91(6), 243-249.
- Schmidt, W., & Finnigan, J. (1992). *The race for the finish line: America's quest for total quality*. San Francisco: Jossey-Bass.
- Senge, P. M. (2000). *Schools that learn: A fifth discipline fieldbook for educators, parents, and everyone who cares about education*. New York, NY: Crown Publishing.
- Shepherd, K. & Salembier G. (2011). Improving schools through a response to intervention approach: A cross-case analysis of three rural schools. *Rural Special Education Quarterly*, 30(3). 1-15.
- Shilling, L. (2014). *Elementary teacher perceptions of the status of response to intervention in moderate wealth school districts with high and low special education classification rates and high and low proficiency on third and fourth grade New York state English language arts assessments*. (Doctoral dissertations). Retrieved from ProQuest Dissertations and Theses Global. (3582036)

- Shores, C. & Chester, K. (2009). *Using rti for school improvement: Raising every student's achievement score*. Thousand Oaks, CA: Corwin Press.
- Simmons, D., Coyne, M., O'i-man, L., McDonagh, S., Harn, B., & Kame'enuei, E. (2008) Indexing response to intervention: A longitudinal study of reading risk from kindergarten through third grade. *Journal of Learning Disabilities, 41*(2). 158-173.
- Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences*. New York, NY: Taylor & Francis.
- Swandlund, A. (2011). *Identifying working conditions that enhance teacher effectiveness: The psychometric evaluation of the teaching working conditions survey*. Chicago, IL: American Institutes for Research.
- Swindlehurst, K., Shepherd, K. Salembier, G., & Hurley, S. (2015). Implementing response to intervention: Results of a survey of school principals. *Rural Special Education Quarterly, 34*(2), 9-16.
- Tennessee State Board of Education. (2013). *Special education guidelines and standards*. Retrieved from http://gov/assets/entities/sbe/attachments/4-19-13-III_G_Special_Ed_Gudelines_and_Standards.pdf
- Tennessee Department of Education. (2014). *RTI² framework 2013 implementation guide*: Revised August 2014. Retrieved from http://www.t.gov/assets/entities/education/rti2_implementation_guide.pdf
- Tennessee Department of Education. (2018). *Assessing progress: Four years of learnings from rti² implementation in Tennessee*. Retrieved from http://www.tn.gov/content/dam/tn/education/reports/rpt_rti_report_assessing_progress.pdf

- Tennessee Department of Education. (2018). *Every student succeeds act: Building on student success in Tennessee. Revised May 2018*. Retrieved from http://www.tn.gov/content/dam/tn/education/documents/TN_ESSA_State_Plan_Approved.pdf
- Tennessee Department of Education. (2018). *RTI² framework 2018 implementation guide: Revised January 2018*. Retrieved from http://www.tn.gov/assets/entities/education/rti2_implementation_guide.pdf
- Tennessee Department of Education. (2018). *Tennessee state report card*. Retrieved from https://www.tn.gov/education/data/report_card.html
- Tennessee Education Research Alliance. (2018). *How principals drive school success: A brief on strengthening Tennessee's education labor market*. Retrieved from https://peabody.vanderbilt.edu/TERA/principal_quality.php
- U.S. Department of Education. (1983). *A Nation at Risk*. Retrieved from <http://www.2ed.gov/pubs/NatAtRisk/index.html>
- U.S. Department of Education. (2001). *No Child Left Behind*. Retrieved from <http://www2.ed.gov/nclb/overview/intro/execsumm.html>
- VanDerHeyden, A. M., & Burns, M. K. (2010). *Essentials of response to intervention*. Hoboken, NJ: John Wiley & Sons, Inc.
- Vaughn, S., & Fuchs, L. S. (2003). Redefining learning disabilities as inadequate response to instruction: The promise and potential problems. *Learning Disabilities Research & Practice, 18*, 137-16.
- Werts, M.G., Lambert, M., & Carpenter, E. (2009). What special education directors say about RTI. *Learning Disability Quarterly, 32*(4), 245-255.

- Wixson, K. K., & Valencia, S. W. (2011). Assessment in rti: What teachers and specialists need to know. *The Reading Teacher*, 64(6), 466-469.
- Wright, J. (2007). *RTI toolkit: A practical guide for schools*. Port Chester, NY: Dude Publishing.
- Young, T. V., Shepley, T. V., & Song, M. (2010). Understanding agenda setting in state educational policy: An application of Kingdon's multiple streams model to the formation of state reading policy. *Education Policy Analysis Archives*, 18(15). Retrieved from <http://epaa.asu.edu/ojs/article/view/771>
- Zola, J. (2011). *The role of leadership responsibilities in the implementation of a school-wide response to intervention model in high-minority and high-poverty elementary schools: Comparing teachers and principal's perceptions* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses Global. (539831)

