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An Evaluation of the Implementation Process of a Response to Intervention (RTI) Model among Grade Three Students and their Study of One Topic of Mathematics in an Elementary School

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Abstract

Implementing a Response to Intervention (RTI) system in a third grade mathematics classroom includes several variables, among them the process utilized to identify students who may benefit from RTI, the professionals involved with implementation, and differentiated practices particular to RTI at Tier 2 or 3. The purpose of this study was to evaluate the implementation process of the Response to Intervention (RTI) system on a group of third grade students in an elementary school during their study of one mathematics topic. The study evaluated how the RTI practices of the responsible parties, (i.e., the teacher, district instructional facilitator, and campus interventionist) are congruent with the district's RTI system. This study utilized a concurrent mixed method research design. The research project followed a qualitative research model, which made use of a pre- and post-test that are included among the district's adopted mathematics curriculum materials, a semi-structured interview with each the teacher, campus interventionist, and district instructional facilitator about their preparedness, attitudes, perceptions, and practices regarding the RTI system and implementation process. Analysis of the data yielded three emergent themes: consistent alignment of RTI implementation practice and district guidelines; the challenge to implement RTI within constraints of daily schedule; and, nature of differentiated interventions by Tier.

Key words: *Response to Intervention (RTI), third grade, mathematics.*

Dedication

I dedicate my dissertation work to my mother who sacrificed so much for me. A special feeling of gratitude go to my husband, Stanton Lawrence whose words of encouragement and push for tenacity ring in my ears. A heartfelt thanks to my children Lauren and Warren who have never left my side and are very special to me and to the memory of my brother, Earl Lester Simon who taught me so much about life.

Acknowledgements

When I started my career as a graduate student, I said to myself "Finish What You Start," which is a statement I often say to my eleven year old son. Looking back on those days that I was struggling to pursue my educational goal, finishing what I started was full of difficulties. It was a long and hard race requiring perseverance and tenacity as a learner. It was a long journey which, after climbing mountain after mountain, exhausted me physically and emotionally. However, having passed through all those trying times, finally, I am presenting this volume as the fruits of my endeavor. At this memorable moment in my life, I have to confess that I could not have accomplished this endeavor without the help of numerous people around me.

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Chapter 1

Introduction

> Today, a student who graduates from school with a mastery of essential skills and knowledge has a good chance of successfully competing in the global market place, with numerous opportunities to lead a rewarding adult life. In stark contrast, students who fail in school are at greater risk of poverty, welfare dependency, incarceration, and early death. With such high stakes, educators today are like tightrope walkers without a safety net, responsible for meeting the needs of every student, with little room for error (Burns, Appleton, & Stehouwer, 2005, p. 382).

Since the publication of *A Nation at Risk* in 1983, there have persisted concerns and challenges to the American educational enterprise to meet the needs of every student. *A Nation at Risk* ushered in a new era in education and became the catalyst for local education agencies to identify and adopt any one of numerous available initiatives, which promote academic success for all students (Castro-Villarreal, Rodriguez, & Moore, 2014; Murakami-Ramalho & Wilcox, 2012; Rinaldi, Averill, & Stuart, 2012). The concerns and challenges are to provide teaching and learning opportunities and experiences that result in student academic success, and develop a citizenry that is career and college ready. A leading concern among educators, policy makers, and parents, however, is the number of students in the United States who continue to demonstrate low achievement levels. *A Nation at Risk* sounded the alarm that "the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and people" (*A Nation at Risk, 1983,p. 9),* but it did not offer systemic

structural change. The *No Child Left Behind Act* [NCLB] (2002) and the Individuals with Disabilities Act [IDEA] (2004) did, however, call for sweeping structural changes to the American educational system at every level (Barrio & Combes, 2014; Greenfield, Rinaldi, Proctor, & Cardarelli, 2010; Rinaldi, Averill, & Stuart, 2010; Wedl, 2005).

NCLB intensified the roles and responsibilities for educators, which included increased accountability standards and implementation of high-stakes testing. Included among the specifics to accountability was the challenge to recognize and monitor the performance of students by sub-groups, such as race/ethnicity, English Language Learners, learning disabled, and those identified as at-risk. Similarly, the reauthorization of IDEA challenged educators at all levels by revising how students with learning disabilities are identified. While the intensified roles and responsibilities presented by NCLB and IDEA affect education stakeholders at all levels -- state, district, campus, and classroom -- the stakeholders who are most in direct contact with students, teachers, are called upon to intimately meet the incumbent challenges (Barrio & Combes, 2014; Castro-Villarreal, Rodriguez, & Moore, 2014; Rinaldi, Averill, & Stuart, 2010). Teachers' professional capacity, ongoing professional development, attitude, and understanding of and towards NCLB, IDEA, and other adopted initiatives directly impact the degree to which requirements and initiatives will be implemented and result in increased student achievement (Barrio & Combes, 2014; Castro-Villarreal, Rodriguez, & Moore, 2014). The challenge posed to educational administrators to ensure teachers are well-prepared and well-versed in NCLB and IDEA are numerous, and include building capacity within teachers of matters such as working with learning disabled students in the mainstream classroom who previously were removed and provided special education

services in a setting away from that classroom. Teachers now share in the responsibility to provide instruction to students identified for special education or behavioral issues along with their regular education students. This requires incorporating differentiated instructional practices and strategies at every level of classroom teaching and learning to address each student based on his/her educational needs and performance level. These challenges elicit a system, model, or process that a teacher can adopt and implement to ensure they are meetings students' academic needs, especially those of struggling students – a model that necessarily includes proactive interventions (Barrio & Combes, 2014; Castro-Villarreal, Rodriguez, & Moore, 2014; Greenfield,et. al, 2010; Rinaldi, Averill, & Stuart, 2010; Wedl, 2005).

The shifting roles and responsibilities of teachers elicited by IDEA calls for a shift in the paradigm through which teachers' attitudes, behaviors, and beliefs are operationalized. IDEA is essentially asking teachers to re-visit how they teach, as well as consider their attitudes, beliefs, and behaviors towards teaching. In case after case, however, they have nothing to compare what and how they teach to, their attitudes and practices are all they know, and their current experience will impact the effectiveness of an innovation (Barrio and Combes, 2014). The teachers' experience may create initial resistance to any changes, and it becomes incumbent upon how an innovation is introduced and sustained with ongoing professional development, collaboration among colleagues, and monitoring that will impact a change in teachers' attitudes, beliefs, practices, and ultimately the effectiveness of an innovation. Overwhelmingly, teachers are committed to the best interests of students; however, the process to implement an innovation can be thwarted by a perceived lack of consistent guidance and professional

development. The innovation is as strong as the foundation upon which it is built. (Greenfield, et. al, 2010). Teachers are overwhelming supportive of innovations that would effectuate IDEA and the opportunity to provide early detection, prevention, and support systems to address the needs of struggling students, since the innovations are in the best interest of the students (Barrio & Combes, 2014; Castro-Villarreal, Rodriguez, & Moore, 2014; Greenfield, et.al, 2010; Rinaldi, Averill, & Stuart, 2010).

One initiative that provides early detection, prevention, and support systems to identify struggling students and assist them before they fall behind is the Response to Intervention (RTI) framework. RTI is based on the notion of determining whether an adequate or inadequate change in academic or behavioral performance has been achieved because of an intervention (Gresham, 2002). RTI came about initially in response to the over-identification of struggling students as special education students. RTI gained prominence amidst the reauthorization of IDEA (2004), which recognized the need to improve early intervention and identification for struggling students, some of whom may need special services (Wedl, 2005). RTI is not a mandate of IDEA; however, its model was recommended as the basis to improve how schools provide early intervention and identification. IDEA addresses legal requirements for accommodating individuals with disabilities in an educational setting, both in a regular classroom setting and where necessary, a specialized setting. RTI was initially conceptualized as a means to determine special education eligibility; however, RTI was later broadened to include the process to determine educational strategies for the prevention of academic difficulties (Fuchs, Fuchs, & Stecker, 2010).

Response to Intervention integrates assessment and intervention within a multi-level prevention system to maximize student achievement and reduce behavioral problems. According to National Center for Response to Intervention (NCRTI 2010), schools with

> RTI use data to identify students at risk of poor learning outcomes, monitor progress, provide evidence-based interventions and adjust intensity and nature of those interventions depending on a student's responsiveness, and identify students with learning disabilities or other disabilities (p. 2).

RTI has been implemented in all 50 states (Hoover, Baca, Wexler-Love, & Saenz, 2008). While there are various iterations of the RTI model among states, its essential components remain constant: a school-wide multi-level instructional and behavioral system for preventing school failure; screening; progress monitoring; and data-based decision making for instruction, movement within the multi-level system, and disability identification (in accordance with state law) (NCRTI, 2010, p. 1; Wedl, 2005). The work to implement a RTI system evokes challenge. In tandem with educators' paradigm shift, there exist structural variables to address and ensure there is congruence between them and the goals of the RTI system. Challenges to implementing a RTI system include persistently low student achievement, especially in urban schools; ensuring a clearly defined curriculum is in place with instructional coherence; the experience level of instructional staff; effective data management systems; and high level student expectations (Ahram, Stembridge, Fergus, & Noguera, n/d; Mellard, n/d; Murakami-Ramalho & Wilcox, 2012; Reeves, Bishop, & Gabler Firce, 2010). The challenge to implement a RTI model is further exacerbated by subject area.

RTI has been studied extensively as a method of addressing problems with young children learning to read; however, there exists very little research in the area of young children experiencing problems with learning mathematics (Hoover & Patton, 2009). The importance of early intervention in mathematics is critical. The devastating long-term impact of entering first grade with weak knowledge of number concepts and operations has been a consistent finding in longitudinal research (Duncan, Dowsett, Claessens, Magnuson, Huston, Klebanov, & Japel, 2007; Morgan, Farkas, & Wu, 2009). Because early math ability is very predictive of later achievement, the response to intervention process is critically important to be used to identify and assist struggling students with school instruction (Morgan, et. al, 2009).

Purpose of the Study

The purpose of this study was to evaluate the implementation process of the Response to Intervention (RTI) system on a group of third grade students in an elementary school during their study of one mathematics topic. The study evaluated how the RTI practices of the responsible parties, (i.e., the teacher, district instructional facilitator, and campus interventionist) are congruent with the district's RTI system. The study followed a qualitative research design and included a semi-structured interview with each the teacher, campus interventionist, and district instructional facilitator about their preparedness, attitudes, perceptions, practices regarding the RTI system and implementation process, and made use of a pre- and post-test that are included among the district's adopted mathematics curriculum materials.

Research Questions

In order to best evaluate the process of implementation of the RTI system on a group of grade three students for a Mathematics topic in one elementary classroom, the research project was guided by the following research questions:

- Do campus professional practices for the assignment to RTI tiers of students in a selected third grade math class align with district guidelines?
- Are the instructional strategies utilized in the selected third grade math class at each Tier aligned with the district's RTI guidelines?
- How do the intervention strategies used at each Tier impact student achievement in one teacher's classroom on a pre- and post-test of an individual mathematics topic?

Research Design

This study utilized case study research design. A case study design allows investigation of a contemporary phenomenon. It is a process where a situation is investigated in depth and in context. It allows a researcher to go into the environment of the subject and witness it in real-life terms. Case study research is concerned with studying the phenomenon, the subject, in its context in order to generate insights into how the phenomenon actually occurs in a given situation. In case study the researcher is oriented to derive answers to why, how, and who; and in order to arrive at any answers various sources of data are gathered and analyzed. In general, meaning and knowledge is generated by the researcher as a result of being immersed in the situation, the phenomenon (Yin, 2009; Merriam, 1998; & Stakes, 1995). For the purposes of this study, the researcher is interested in the narrative descriptions, perceptions and processes

utilized in one third grade classroom to implement RTI. Utilizing a qualitative approach, the researcher obtained insight into how RTI was implemented in the selected classroom in comparison to what the district's RTI guidelines state.

This study includes data sources such as the results of the math topic pre- and post-test, field notes of visitations with the district instructional facilitator, classroom teacher, and campus intervention specialist, as well as field notes from two classroom observations and RTI related artifacts. The pre- and post-tests' results, and the district's RTI guidelines were used to gain understanding of the impact of the RTI interventions received by select group of students in the third grade classroom.

Problem Statement

IDEA provides latitude for a school district to define a RTI model for use in its schools, in order to provide all students with the best opportunities to succeed in school, identify students with learning or behavioral problems, and ensure that they receive appropriate instruction and related supports (NCRTI, 2010, p. 8). However a district may define its RTI model, a challenge presents itself to provide to teachers and others responsible to implement RTI professional development sufficient to ensure they are able to do so with fidelity and integrity. The implementation preparedness must necessarily recognize that while RTI has been studied extensively as a method of addressing problems with young children learning to read there is very little research in the area of young children experiencing problems with learning mathematics (Hoover, 2009) and how RTI interventions appropriately address math related student struggles. The problem is to evaluate the process to implement a RTI model and define how the implementation fulfills the design and intention of the model.

Significance of the Study

For the past decade, the RTI model has been discussed and critiqued as a new assessment tool in diagnosing students with learning disabilities (Vaughn & Fuchs, 2003). Research indicates that students who struggle with mathematics can benefit from a tool, such as RTI, that helps teachers with struggling learners in the area of mathematics (VanDerHeyden, Witt, & Gilbertson, 2007). This study will evaluate the practice of one classroom, which uses an RTI model to guide the placement of students in groups (RTI Tiers) to address their learning challenges, with the goal of providing equitable teaching and learning, so all student will experience academic achievement in understanding mathematics.

Definition of Terms

AIMSweb. AIMSweb is a computerized progress monitoring system based on direct, frequent and continuous student assessment. The results are reported to students, parents, teachers and administrators via a web-based data management and reporting system to determine response to intervention.

Conceptual Knowledge. "Learning that focuses on generalizations that make connections among ideas" (Sherman, Richardson & Yard, 2009, p. 6).

Curriculum Based Measure (CBM). CBM is a form of classroom assessment that 1) describes academic competence in reading, spelling, and mathematics; 2) tracks academic development; and 3) improves student achievement (Fuchs & Stecker, 2003). It can be used to determine the effectiveness of the instruction for all students and to enhance educational programs for students who are struggling (McMaster & Wagner, 2007).

Discrepancy level (DL). In terms of identifying learning disabilities, the RTI method was developed as an alternative to the ability–achievement "discrepancy model," which requires children to exhibit a discrepancy between their ability (often measured by IQ testing and academic achievement (as measured by their grades and standardized testing). http://en.wikipedia.org/wiki/Wikipedia

Formative Assessment. "Assessment data are gathered before completion of a particular lesson or unit of instruction and decisions are made about how instruction should continue" (Ashlock, 2011, p.230).

Learning Disabled (LD): Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations http://www.asha.org/docs/html/RP1991-00209.html#sthash.pzBYsFLf.dpuf

Procedural Knowledge. "Learning that focuses on learning skills and step by step procedure" (Sherman, et al, 2009, pp. 6-7).

Summative Assessment. "When assessment data are gathered after completion of a particular unit of instruction and judgments are made about student learning" (Ashlock, 2011, p.232).

Response to Intervention (RTI). "Response to Intervention is based on the notion of determining whether an adequate or inadequate change in academic or behavioral performance has been achieved because of an intervention" (Gresham, 2002, p. 472).

Tier I. "Involves the delivery of high-quality core instruction that meets the needs of most students in the class. Teachers deliver core instruction to all students each day" (National Center on Response to Intervention, 2010, p.10).

Tier 2. "Involves the delivery of researched-based intervention(s) of moderate intensity to address the learning or behavioral challenges of most at-risk students in the lass. Secondary instruction is provided in addition to daily core instruction" (National Center on Response to Intervention, 2010, p.10).

Tier 3. "Involves the delivery of individualized intervention(s) of increased intensity for students who show minimal response to secondary intervention. Teachers collect and analyze progress monitoring data to determine when and how to provide more intensive intervention for nonresponsive students" (NCRTI, 2010, p.11).

Summary

"RTI has been used to identify students who are at risk for poor learning outcomes, to monitor school progress, to provide evidence-based interventions and to adjust the intensity and nature of those interventions depending on the student's responsiveness" (NCRTI, 2010, p. 8). RTI has also been a means of providing specific intervention documentation for identifying students with learning disabilities. This chapter introduced the framework for a research project to evaluate the implementation process of the Response to Intervention (RTI) system on a group of third grade students in an elementary school during their study of one mathematics topic.

Chapter 2

Literature Review

"Education, then, beyond all other devices of human origin, is the great equalizer of the conditions of men - the balance wheel of the social machinery" (*Horace Mann,*1846).

Evolution of Equity in Education

Pursuing equity in the educational enterprise has been a persistent theme throughout much of American history, and the understanding and definition of equity in education continues to evolve. Horace Mann (c. 1846), an educational reformer and considered by many to be the father of the common school system, proposed the system in order to provide equal educational opportunities for all America's youth. The common school, supported by taxpayers, would teach common standards; wherein, the values and ideals held by the rest of society would be propagated. The common school would socialize children and result in improved social conditions. Fundamental to the common school system was the goal to address that segment of the student population who exhibited behavioral issues, truancy, and students from the urban slums. Students with behavioral issues and students from the urban slums were included in the same category in need of special education services, since it was believed they could not be successful in the regular setting, as evidenced by their poor school attendance. Manual training classes were developed to offer these students a supplement to the regular education program. Manual training classes included carpentry, metal work, cooking, and sewing. The belief was that such classes would attract students to school and once attending regularly, the students' moral character would be reshaped. For public schools to fulfill their mission of socializing children, all students had to attend school, and if separating and

categorizing students for special education programs would help to fulfill that mission, then these programs were vital to the educational enterprise (Cremin, 1982). Separating students within the educational structure is not a new idea or practice; however, the earliest experiences were designed to address socialization concerns, not cognitive or learning disabilities.

The Expanding Role of Serving Children with Special Needs

The requirement to serve children with disabilities in public schools is a recent development. Prior to the 1970s, it was commonplace for students with disabilities to be refused enrollment or inadequately served by the public schools. For example, "in 1970, U.S. schools educated only one in five children with disabilities, and many states had laws excluding certain students from school, including children who were deaf, blind, emotionally disturbed, or mentally retarded" (U.S. Department of Education, 2010, p.3). Federal legislation had provided grants to states to create asylums to care for those considered deaf and dumb, as well as grants to promote education of the blind; however, there was no expectation or direction for public schools. The National Defense Education Act (NDEA) of 1958 and the Elementary and Secondary Education Act (ESEA) of 1965 both were the first major federal efforts to improve public education, but neither of the Acts included provisions for the education of children with disabilities (DOE, 2010; Martin, Martin, & Terman, 1996).

In 1975, Public Law 94-142, the Education for All Handicapped Children Act (EHA) was the first legislation that required all students with disabilities receive a free, appropriate public education. When the EHA was reauthorized in 1990 its title was changed to the Individuals with Disabilities Education Act (IDEA). [Prior to IDEA]

> too many children were denied access to education and opportunities to learn. Providing appropriate education to youngsters from diverse cultural, racial, and ethnic backgrounds was especially challenging. Further, most families were not afforded the opportunity to be involved in planning or placement decisions regarding their children, and resources were not available to enable children with significant disabilities to live at home and receive an education at neighborhood schools in their community (U.S. Department of Education, p. 5).

Since its original promulgation, EHA/IDEA policies and practices have been developed to include students with disabilities in general education classrooms, and accountability systems have continued to expand the scope of the legislation to best meet the needs of all students. The trajectory refining IDEA's scope has moved from its original implications that were to "(a) improve how children with disabilities were identified and educated, (b) evaluate the success of these efforts, and (c) provide due process protections for children and families" (U.S. Department of Education, p. 5); subsequently, expanding IDEA's scope to include addressing children with learning disabilities from 3-21 years of age to beginning at birth; expanding opportunities for disabled students in least restrictive environments; supported provisions for culturally relevant instruction; and, supporting state and local efforts to prepare highly-qualified personnel to service students with disabilities (U.S. Department of Education, 2010; NCRTI, 2010).

When IDEA was originally enacted, it laid out broad mandates for services to all children with disabilities; however, those children were a large heterogeneous group. There was no distinction between the elementary school student with a speech

impediment, the high school student in a wheelchair, the student with emotional disorders, and the student with a history of school suspensions. There were no particular types of services included in IDEA's original broad mandates (U.S. Department of Education, 2010; Martin, Martin, & Termin, 1996). Subsequently, IDEA allotted funding for states to support educational programs for students with identified learning disabilities.

Establishing practices to identify particular learning disabilities was a significant step along the trajectory of expanding supports for students. At the same time the identification of learning disabilities became common practice, a challenge to determine what educational setting was best to address the disability and that would provide an educational experience most meaningful for the student was taking place. In response, IDEA required the school to consider modifications in the regular classroom before moving the student to a more restrictive environment; this requirement is referred to as Least Restrictive Environment (LRE) (Howard, 2004; Martin, Martin, & Tremin, 1996).

The continuum of considerations along which LRE is defined for a student most often resulted in remedial practices, which called for a pull-out, label-driven service delivery. Pull-out, label-driven service delivery is defined as "removing students from the general education classroom for short sessions to address their individual needs" (Germann, 2010, p. 5). During IDEA's initial implementation, children with disabilities received remedial services and were most often excluded from the general curriculum (Ikeda, 2002); however, IDEA emphasized the notion of least restrictive environment, educating students with disabilities in the regular classroom, as much as possible. A shift in this practice was slowly taking place with a significant shift to occur with IDEA's

2004 reauthorization.

Refining the Understanding of Equity

January 8, 2002, President George W. Bush signed the No Child Left Behind Act into law. At the signing he stated, "We know that every child can learn. Now is the time to ensure that every child does learn." The No Child Left Behind Act of 2001 (NCLB) was enacted "[t]o close the achievement gap with accountability, flexibility, and choice, so that no child is left behind" (NCLB, 2002, Public Law PL 107-110 Sec. 1001.3). NCLB revolutionized the American educational system. A closely monitored system of assessments, including graduation rates, teacher expertise, and the academic achievement of students divided by ethnicity/race, gender, language, and those with special needs was defined (Murakami-Ramalho & Wilcox, 2012). In tandem, the U.S. Congress worked to align NCLB and IDEA. The 2004 reauthorization of IDEA demonstrated this alignment by mandating the use of scientifically based research, progress monitoring, general education interventions, student outcome-driven decisions, and reducing the over-identification of special education students as expected practices by schools (Castro-Villarreal, Rodriguez, & Moore, 2014; Murakami-Ramalho & Wilox, 2014; Rinaldi, Higgins Averill, & Stuart, 2010).

> [NCLB and IDEA] have established high standards and strengthened the importance of rigorous research that drives investments in knowledge production. These laws are strengthening knowledge utilization through mandates for local decision making to increase sustained practice improvement and to increase access to and progress in the general education curriculum. Strong mandates and high standards also are helping to ensure that both the producers and users of

> scientifically based practices are held accountable, with shared responsibility for improving learning and achievement for all students (U.S. Department of Education, 2010, p. 10).

IDEA 2004 represented another evolution of the legislation whose legacy has been to support students who, for a variety of reasons, have struggled to be successful in the traditional setting by revising the way in which struggling students can be diagnosed as learning disabled. The reauthorization of IDEA modified the requirement and introduced an alternative means of identifying a disability, known as responsiveness to intervention, or RTI (U.S. Department of Education, 2010).

Genesis of RTI

"RTI can be used to positively impact the achievement of all students, especially struggling students" (DOE, 2010, p. 10). With RTI, schools identify students at risk for poor learning outcomes, monitor student progress, provide evidence-based interventions and adjust the intensity and nature of those interventions depending on a student's responsiveness, and identify students with learning disabilities (Castro-Villarreal, Rodriguez, & Moore, 2014; DOE, 2010; Murakami-Ramalho & Wilox, 2014; Rinaldi, Higgins Averill, & Stuart, 2010). IDEA called for disabled and non-handicapped students to participate in the general curriculum using large-scale assessments, and State accountability and compliance performances became mandatory (Jimerson, Burns, & VanDerHeyden, 2007). RTI is a method of educational intervention for children who are having difficulty learning. RTI seeks to prevent academic failure through early intervention using frequent progress monitoring, and increasingly intensive instructional practices for children who continue to have difficulty learning (National Association of

State Directors of Special Education, 2008). Using the RTI model, local school districts identify struggling students using standardized, researched based assessments administered to all children at predetermined times during a school year. As students are monitored, instruction is adjusted for individual student need. Although RTI approaches are not mandated by federal regulation, RTI is included in IDEA as an exemplar of a scientific, research-based intervention model (IDEA 2004, Sec. 614.b.6.B).

The notion that IDEA proposed intervention as a participatory factor in addressing the needs of struggling students represented a significant shift away from the practice referred to as "wait to fail." Wait to fail was the common moniker for the IQ/Discrepancy Model; wherein, students could not receive special or additional services until a discrepancy between expected performance (based on IQ test results) and an observed deficiency could be demonstrated over time (Murakami-Ramalho & Wilcox, 2012; Wedl, 2005). The wait to fail model posed difficulties. One was its reliance on the IQ test, which, for example, could present bias for some student groups, such as minority students, who would consistently score lower on standardized tests than their white peers. Minority students with limited language proficiency would score low on an IQ test, not because of limited cognitive ability, but language limitations; yet, the IQ test score could result in the student being diagnosed as learning disabled and scheduled for special education services. "Such practices often lead to over-representation of such students in special education programs" (Wedl, 2005, p. 5). There also existed a concern due to lack of research demonstrating a connection between assessment and instruction for students identified through the wait to fail model. Wait to fail did not establish a direct link between assessment procedures used for identification and "subsequent interventions that

might be prescribed on the basis of these assessment procedures" (Greshman, 2001, p.3). There was a need to develop practices to define learning disabled based on how students responded to instructional interventions, and not on some arbitrarily defined discrepancy between ability and achievement. Instructional interventions and how students perform in response to these interventions are at the core of RTI.

What Is RTI?

The National Center on Response to Intervention (NCRTI), a clearinghouse and support center to schools and education professionals, was created through funding from the U.S. Department of Education's Office of Special Education Programs, the American Institutes for Research, and researchers from Vanderbilt University and the University of Kansas. NCRTI defines RTI as

> Response to Intervention integrates assessment and intervention within a multi-level prevention system to maximize student achievement and reduce behavioral problems. With RTI, schools use data to identify students at risk of poor learning outcomes, monitor progress, provide evidence-based interventions and adjust intensity and nature of those interventions depending on a student's responsiveness, and identify students with learning disabilities or other disabilities (NCRTI, 2010, p. 2).

Subsequent to IDEA 2004's promulgation, the 2004 Learning Disabilities Roundtable was convened. The roundtable was a follow-up to the 2002 Learning Disabilities Roundtable, convened by the U.S. Department of Education's Office of Special Education Projects (OSEP) research to Practice Learning Disabilities Initiative. The roundtable was comprised of member organizations of the National Joint Committee

on Learning Disabilities (NJCLD). The purpose of the roundtable was to address the implications of IDEA 2004 on the support and education of students with disabilities. The 2004 roundtable's composition was expanded from the 2002 roundtable to include additional organizations for a total roundtable membership of 14 organizations represented. The 2004 Learning Disabilities Roundtable consensus report included a list of nine characteristics that the RTI process must include:

1. High quality instructional and behavioral supports are in place.
2. Scientific, research-based intervention is delivered by qualified personnel as defined [by IDEA], with expertise in the intervention used and in the areas of student difficulty.
3. Student progress is continuously monitored.
4. Data-based documentation is maintained on each student.
5. Systematic documentation verifies that interventions are implemented with fidelity, integrity, and the intended intensity.
6. Decisions are made by a collaborative team of school staff who review response data and other information required to ensure a comprehensive evaluation as defined [in IDEA].
7. Interventions address the individual student's difficulties at the needed level of intensity and with the support of needed resources and personnel.
8. A written document describing the specific components and structure of the process to be used is available to parents and professionals.
9. Parent notification and involvement are documented (2004 Learning Disabled Roundtable, 2005, p. 18).

Within the literature there is slight variation on what are considered the key components of RTI; however, in one form or another, each of the nine characteristics named in the 2004 Learning Disabled Roundtable report can be found in current RTI models, and most often synthesized from nine into three or four. For example, the RTI Action Network (n.d.) lists (a) high-quality, scientifically based classroom instruction, (b) ongoing student assessment, (c) tiered instruction, and (d) parent involvement as essential components. Wedl (2005) lists (a) identification, (b) eligibility, and (c) intervention as the essential components of RTI. The National Research Center on Learning Disabilities (NRCLD, 2007) identified (a) high-quality classroom instruction, (b) universal screening, (c) continuous progress monitoring, (d) research-based interventions, and (e) fidelity to instructional interventions as core components of RTI.

The NCRTI has articulated four essential components of RTI, and this review will elaborate on these components. According to the NCRTI, the four essential components of RTI are:

- A school-wide, multi-level instructional and behavioral system for preventing school failure
- Screening
- Progress Monitoring
- Data-based decision making for instruction, movement within the multi-level system, and disability identification (in accordance with state law) (NCRTI, p. 1).

The four essential components are dynamic and interactive in nature. The interaction is synergistic; their interplay may create an opportunity to contextualize and

refine preventions and interventions for students. While the four essential elements are interactive, it is the data derived from high-quality instruction, screening, and progress monitoring that drives the kind and intensity of intervention that a student may need in order to promote performance and achievement at the level established by state and local standards. The RTI system, through consistent implementation of the essential components is best situated to proactively identify students who are struggling, and the particular issues causing the struggle; subsequently, provide direction for strategies and interventions that may address whatever it is that is causing a student to struggle. Fidelity to implementation of the four essential RTI components "will contribute to more meaningful identification of learning and behavioral problems, improve instructional quality, provide all students with the best opportunity to succeed in school, and assist with the identification of learning disabilities and other disabilities" (NCRTI, p. 1).

Essential Components of RTI

A school-wide, multi-level instructional and behavioral system for preventing school failure. "RTI is a prevention oriented approach to linking assessment and instruction that can inform educators' decisions about how best to teach their students" (NCRTI, p. 4). RTI's aim is to intervene in a student's learning so as to avoid long-term negative learning outcomes. The goal is to respond quickly and efficiently to learning and behavioral problems that have been identified during regular instructional time and documented, and where necessary identify students with disabilities. RTI is a school-wide system inasmuch as it is most directly implemented by core subject area teachers (i.e., reading, language arts, mathematics); however, students' learning and behavior problems exhibited in other subject areas may be considered in order to effect positive

learning and behavioral outcomes throughout the school experience. The interventions integrate academic instruction with positive behavioral supports. "The RTI system includes three levels of intensity or three levels of prevention, which constitute a continuum of supports" (NCRTI, p. 4).

Screening. Identifying students at risk for poor learning outcomes or challenging behavior is essential to the RTI process. Screening is the means by which at-risk for poor learning outcomes students, or those with challenging behavior are identified. Screening includes two stages: universal screening for all students, and additional in-depth screening for students who score below an articulated cut score on the universal screening assessment. Universal screenings are "brief assessments that are valid, reliable, and demonstrate diagnostic accuracy for predicting which students will develop learning or behavioral problems" (NCRTI, p. 8). Fuchs and Fuchs (2005) describe RTI screening practices:

> *Acceptable Practices*. To identify at-risk students: (1) the previous year's state assessment scores are reviewed to identify any student scoring below the 25th percentile in reading or math; OR (2) an achievement test is administered to all children in a given grade, with at-risk children designated as those scoring below the 25th percentile. (NOTE: At-risk students can also be identified by teachers or parents.)
>
> *Best Practices*. To identify at-risk students (1) everyone is assessed using brief screening tools that demonstrate diagnostic utility for predicting performance on the reading and math state assessments (in the elementary grades) or on the local graduation requirements (at the secondary level); OR (2) only those students who

> perform below the 25th percentile on the previous year's state assessment, or who perform below the 25th percentile on a more current achievement test, are screened individually with tools that have diagnostic usefulness (p. 57).

Screening provides information to teachers about individual students to best prepare instruction tailored to meet students' needs. The goal of early intervention is to target *all* students within a classroom to determine who is who is not making adequate progress. This kind of screening is termed "universal screening" and involves short assessments that are valid, reliable, and evidence-based (Swigart, 2009). The purpose of universal screening is to determine which students are at risk, which students are lacking specific knowledge in a given area, and to determine whether the instructional environment is adequate for student progress. If the growth rate of students within a particular class is significantly less when compared to other classes, then it can be assumed that the problem lies in the instruction rather the students' conceptual and procedural knowledge. If the problem is determined to be instruction, then instruction would need improvement (Vaughn & Fuchs, 2003).

Seethaler and Fuchs' study *The Predictive Utility of Kindergarten Screening for Math Difficulty (2010),* examined the reliability, validity, and predictive utility of kindergarten screening for risk for math difficulty. Three screening measures, administered in September and May to 196 students assessed number sense and computational fluency. Conceptual and procedural outcomes were measured at the end of first grade. Math difficulty was defined as scoring below the 16th percentile…This study in its entirety, compared single versus multiple skill screeners, fall versus spring kindergarten screening, and conceptual versus procedural outcomes. The screeners

represented the type of assessment given to students. The study concluded that because kindergarten students begin school in the fall with varying levels of developmental maturity, attention, or experience with paper-and-pencil tasks, it would be understandable if the relationships among math screeners and criterion measures were stronger in the spring, once some of the variability due to unequal preschool experiences is eliminated. The results of this study did not demonstrate this. Predictive validity remained stable across the kindergarten year, with respect to end-of-first-grade mathematics outcomes (Seethaller, et. al, 2010, p. 46, 55).

Progress Monitoring. Repeated measurement of students' performance, in order to inform instruction in general or special education is progress monitoring. The monitoring is conducted to provide student performance data to help teachers plan the most effective instruction. Progress monitoring implies that student performance will be repeatedly assessed within a defined timeframe, "allowing teachers to estimate rates on improvement, identify students who are not demonstrating adequate progress, and compare the effectiveness of different forms of instruction" (NCRTI, p. 9).

"From the early 1990's to the present, increased attention has been placed on effective assessment and teaching practices for reading" (Christ & Hintze, 2005, p. 2). One of the main ideas to arise from this focus is increased attention on assessment. The purpose of assessment then changed to proactive rather than reactive. Much like the assessment of reading difficulties, math education literature supports the practice of formative assessment and connected instruction. This assessment effort contributes to developing tools to help educators make decisions about instructional strategies for struggling students (Burns, 2006, p. 390). Children often enter school with informal

math skills such as being able to count, to identify numbers, to discriminate between quantities, and to formulate mental number lines (Horner, Carr, Halle, McGee, & Worley, 2005). Teachers of mathematics, just like teachers of reading, need tools to help with identifying students' mathematics conceptual and procedural levels so as to be proactive rather than reactive (Horner et al., 2005).

> RTI assessment is to monitor the progress of students who have been identified as at risk. This is called progress monitoring and is defined as the frequent academic assessment of students to determine whether the students are learning from their instructional program at an acceptable rate. Often the measures used for progress monitoring are similar to the universal screening measures. Progress monitoring can occur biweekly or as little as one time per month. Because progress monitoring is intended to assess learning across the academic year, the results can also be used to make decisions regarding the effectiveness of curriculum, instruction, and interventions utilized. (Gersten and Newman-Gonchar, 2011, p. 8).

Data-based decision making for instruction, movement within the multi-level system, and disability identification (in accordance with state law). "A multi-tier approach is used to efficiently differentiate instruction for all students. The model incorporates increasing intensities of instruction offering specific, research-based interventions matched to student needs" (RTI Action Network, n.d., What is RTI?). According to the NCRTI (2010),

> Teachers use student assessment data and knowledge of student readiness, learning preferences, language and culture to offer students in the same class

> different teaching and learning strategies to address their needs. Differentiation can involve mixed instructional groupings, team teaching, peer tutoring, learning centers, and accommodations to ensure that all students have access to the instructional program. Differentiated instruction is NOT the same as providing more intensive interventions to students with learning problems (p. 9).

The essential components create a framework to guide local education agencies in their efforts to create a RTI system. RTI is not an instructional practice, but a framework, a model for providing comprehensive support to students; and, though there is no single, thoroughly researched and practiced model of the program, as previously cited, the RTI multi-level prevention system most often includes three levels: Tier One, Tier Two, and Tier Three (NCRTI, 2010; RTI Action Network, n.d.; Wedl, 2005). (see Appendix A)

RTI as a Multi-Level System

Each intervention level, beginning with Tier One, includes intensified intervention strategies from the prior tier; whereby, instructional practices are adjusted to best accommodate a student's need. The tiers represent a continuum of supports in order to minimize the risk of long-term negative learning outcomes. At every tier, attention is on fidelity of implementation, with consideration for cultural and linguistic differences among students and how they respond to interventions, and recognition of student strengths (NCRTI, 2010; RTI Action Network, n.d.).

> The nature of the academic intervention changes at each tier, becoming more intensive as a student moves across the tiers. Increasing intensity is achieved by (a) using more teacher-centered, systematic, and explicit (e.g., scripted) instruction; (b) conducting it more frequently; (c) adding to its duration; (d)

> creating smaller and more homogenous student groupings; or (e) relying on instructors with greater expertise (D. Fuchs & L. Fuchs, 2006, p. 94).

Tiered instruction within RTI refers to instruction delivered to students on several levels related to the nature and severity of the students' difficulties. Most RTI models consist of three tiers of instruction, although some models use an additional fourth tier and other models subdivide the tiers into smaller units. The instructional supports, interventions, and assessment become more intensive as students move through the tiers (Becky et al, 2008). Most RTI models suggest that the core instructional program should approximately address the learning needs of 80% of the student population. Tier 2 instruction is more intense and should address the learning needs of 15% of the student population, and no more than 5% of the student population should require Tier 3 interventions (National Association of School Psychologists, 2006).

Some educators view increased intensity as "something that can be accomplished by increasing instructional time and/or reducing the size of the instructional group" (Torgesen, 2005, p. 34-39). According to the National Research Center on Learning Disabilities, interventions should not go beyond 8 weeks because "that amount of time should be ample to determine the student's response to intervention" (Bradley, Danielson, & Doolittle, 2007, p. 9). All children receive Tier I instruction, but those children in need of supplemental intervention receive additional, more intensive instruction at Tier 2 and Tier 3. Tier 2 consists of children who fall below the expected levels called benchmarks, and are at some risk of academic failure. The needs of these students are identified through the assessment process, and instructional programs are delivered that focus on their specific needs. Instruction is provided in groups smaller

than Tier I. Tier 3 consists of students who are considered to be at high risk for failure. If Tier 3 students are not responsive to intervention, they are considered to be candidates for the special education process (Jimerson, Burns, and VanDerHeyden, 2007).

Quantifying intervention intensity: A systematic approach to evaluating student response to increasing intervention frequency (Duhon, Mesmer, Atkins, & Greguson, 2009) was a study conducted at an elementary school that serves 500 students/participants in kindergarten through fourth grade. The purpose of this study was to determine if the application of the increased frequency of a fluency-based intervention package on the mathematics performance levels similar to that of typically responding peers. Additionally, this study attempted to determine if this intervention strengthening would result in the creation of a metric for evaluating intervention strength.

> The results of this study indicate that the application of an intervention hierarchy model involving increased frequency intervals resulted in quantitatively more intense treatment for individual students as well as improved functioning of the entire group. The use of a benchmark criterion allowed for the evaluation of math performance against an anchor that is consistent with successful future outcomes. The intervention utilized during the responsiveness evaluation produced satisfactory response for fluency (benchmark level or higher) in all but three students. Non-responsive students (those not reaching benchmark) were included in the intensity analysis phase. Two of the participants, responded to the intervention when it was increased to five times that of the original intensity. Each was able to meet benchmark criterion quickly after the intervention increased. Another student showed insufficient response until he was exposed to

> intervention ten times the original intervention. Once the intervention intensity increased, his performance also increased to the benchmark level. At the conclusion of the intervention phases, all participants had made progress with the fluency intervention and were considered to be functioning in the mastery range with the skill (Duhon et al, 2009, p. 114-115).

Understanding the RTI multi-level system, and the inherent differences of intervention intensity at each level are pivotal to maintain the integrity of RTI. The structure, means to determine a student's eligibility for assignment to an RTI tier, and practices to monitor performance within a given tier – all presume a thorough understanding of RTI and each of its tiers.

Tier One. The RTI process begins with high-quality instruction and universal screening of all children in the general education classroom (RTI Action Network, n.d.). It begins with the quality of the core curriculum; wherein, a district or school has adopted a curriculum that is research-based and aligned with states' achievement standards. Tier One, core curriculum, is designed to meet the needs of most students. Additionally, the core curriculum is culturally and linguistically responsive; it includes language and inferences that are not biased, but sensitive to the diversity of learners' cultural and linguistic backgrounds. Presuming high-quality, scientifically-based classroom instruction is in place, the next important element is the use of ongoing student assessment, often referred to as universal screening. The use of appropriate assessments is crucial to the RTI process (NCRTI, 2010; RTI Action Network, n.d.).

> Universal screening measures are evaluations that are generally administered to all students three or four times a year. Universal screening assessments are

> characterized by providing quick, low-cost, repeatable testing of age-appropriate critical skills such as identifying numbers. The results are used to identify students who are at risk for learning difficulties in math as well as to establish local norms. After the screening measures are analyzed, students who are deemed to be at risk for learning problems are often monitored to determine the progress they are making. The basic question in a universal screening measure is whether or not the student should be judged as "at risk." For example, the school nurse who uses the Snellen eye chart wants a quick indicator of students who might have difficulty seeing from a distance. If a student has difficulty reading the eye chart, a referral is made for a more in-depth assessment. In a similar way, the classroom teacher uses a screening measure to identify students who meet the screening criteria for possible at-risk status. These students are then considered for a more in-depth assessment, such as monitoring their progress during the next six weeks with specific assessments (Horner et al., 2005, p. 175).

Tier Two Students not making adequate progress in the regular classroom in Tier 1 are provided with increasingly intensive instruction matched to their needs on the basis of levels of performance and rates of progress. Intensity varies across group size, frequency and duration of intervention, and level of training of the professionals providing instruction or intervention. These services and interventions are provided in small-group settings in addition to instruction in the general curriculum (RTI Network, n.d.).

> When a student is identified via screening as requiring additional intervention, evidence-based interventions of moderate intensity are provided. These

> interventions, which are in addition to the core primary instruction, typically involve small group instruction to address specific identified problems. These evidenced-based interventions are well defined in terms of duration, frequency, and length of sessions, and the intervention is conducted as it was in the research studies. Students who respond adequately to secondary prevention return to primary prevention (the core curriculum) with ongoing progress monitoring. Students who show minimal response to secondary prevention move to tertiary prevention, where more intensive and individualized supports are provided. (NCRTI, p. 6).

Tier Three At this level, students receive individualized, intensive interventions that target the students' skill deficits. Students who do not achieve the desired level of progress in response to these targeted interventions are then referred for a comprehensive evaluation and considered for eligibility for special education services under IDEA 2004 (RTI Network, n.d.).

> The third level of the RTI prevention framework, is the most intensive of the three levels and is individualized to target each student's area(s) of need. At the tertiary level, the teacher begins with a more intensive version of the intervention program used in secondary prevention (e.g., longer sessions, smaller group size, more frequent sessions). However, the teacher does not presume it will meet the student's needs. Instead, the teacher conducts frequent progress monitoring (i.e., at least weekly) with each student. These progress monitoring data quantify the effects of the intervention program by depicting the student's rate of improvement over time. When the progress monitoring data indicate the student's rate of

> progress is unlikely to achieve the established learning goal, the teacher engages in a problem-solving process. That is, the teacher modifies components of the intervention program and continues to employ frequent progress monitoring to evaluate which components enhance the rate of student learning (NCRTI, p. 11).

According to Mellard, McKnight, and Jordan (2010),

> Tertiary-level prevention is reserved for the small segment of the population who need very intense, specialized, and often individualized interventions. In a medical framework, tertiary services are similar to the intensive care units for those few patients with the greatest needs. These individuals require very careful progress monitoring and highly specialized treatments, usually for short time periods. Even here, where the condition has not been completely prevented, the goal is to provide these short-term interventions so that patients can be moved to a step-down unit that will continue to support the patient at a lower level of intervention. In schools, the estimated 5 percent to 7 percent of students whose learning rates and levels of responsiveness to the secondary prevention level interventions are not sufficient become candidates for the tertiary level. These students tend to have the most severe needs, and are likely to require higher, more specialized dosages of intervention if they are to achieve a learning rate and level similar to their classmates (p. 218).

The RTI model, as a multi-tier system that includes increasing intensity at each tier, provides a framework for educators to regularly monitor student performance and progress. Through monitoring, educators are able to implement interventions and proactively deliver instruction that meets students' individual needs; however, a pivotal

consideration is the consistent and faithful implementation of the RTI system (Fuchs & Fuchs, 2006; Mellard et al., 2010).

Implementing an RTI System

"Implementing RTI requires a broadening in focus. To implement this innovation in a school setting, one has to pay attention not only to research about effective instruction, but also to the change management process" (Hull, n.d.). RTI's focus and beneficiary are students; however implementing RTI, the focus is on the teacher. "Teachers and special educators are asked to take on the roles of intervention specialists, RTI experts, and Tier evaluators in addition to their undersold roles as high-quality instructors who perform daily with professional practices of rigor, excellence, and skill," (Reeves, Bishop, and Filce, 2010, p. 34). Implementing RTI includes multiple challenges, and while there has been, since IDEA 2004's promulgation, an abundance of literature to describe what RTI is, there had been relatively less literature on how it may look within schools, and the factors required for successful implementation (Brozo, 2009; Harlacher & Siler, 2011; Johnson, & Smith, 2008; Murakami-Romalho & Wilcox, 2012; Reeves, Bishop, & Filce, 2010; Mellard, n.d.).

The literature to address the challenges of implementing RTI is growing. It is representative of perspectives, such as case studies of schools' RTI implementation experience, academics reviewing extant literature, and the results of targeted research projects. For example, Harlacher and Siler (2011), through a review of literature that described implementation efforts, identified a set of factors that affect RTI implementation. These researchers identified 13 factors, which were referred to in the

extant literature, the frequency that each factor was referenced and produced a rank order of factors. Table 1 lists the factors and percentage of references to the particular factor.

Table 1 Factors Associated with Successful RTI Implementation (Harlacher & Siler, 2011, p. 20)

Factors Associated with Successful RTI Implementation	
FACTOR	PERCENTAGE
Professional Development	55%
Staff "Buy In"	50%
Leadership	45%
Time for Collaboration (analyze student data)	45%
Broad Ownership	40%
Resources/Infrastructure	30%
Accountability for Using Practices	15%
Family Involvement	15%
Proactively Navigate Barriers	10%
Clarity of Language Used	5%
Clear Policies and Procedures	5%
Collaboration With Preservice Training	5%
Time for Implementation	5%

Fisher and Frey (2011), conducted a case study of a high school that was in its second year of RTI implementation, and within their conclusion stated, "In reflecting on the successes and challenges of implementing RTI as a system reform at the high school level, we identified several factors that served to facilitate the success" (p. 112). The factors they identified that served to facilitate success were:

- Every one of the adult staff members and some peer tutors need to become involved in intervention efforts;
- Clearly, professional development was critical to ensure that RTI efforts at [the school] were successful;
- Assessments are critical to the operation of an RTI framework;
- The school was propelled forward when personnel were assigned the task of

coordinating intervention efforts. Although progress was made before the study, and steady progress continued during the first year, the real breakthroughs came when intervention efforts were coordinated; and

- The scheduling of intervention efforts to supplement, but not supplant, core instruction need to be included during core instruction time, not separate from (p. 112).

Murakami-Ramalho and Wilcox (2012) reported on a case study of an elementary school principal implementing RTI. The case study describes the strategies of a principal implementing RTI by using a whole organization structural approach. The strategies identified in the case study were:

- Defining the achievement gap;
- Striving to engage everyone to work together on the goal;
- Understanding that teachers needs additional training in intervention instruction to support students;
- Leveraging leadership in order to stay the course; and
- Building internal accountability which is linked to external accountability (p. 494).

In the literature cited above there were commonly shared factors identified for successful implementation of RTI. The literature represents different perspectives -- an elementary school, a high school, and collective extant literature -- each context is different, yet there are recurring themes among the discussions within each piece of literature. There is slight variation in the language used to describe each factor; however, key words or phrases are repeated. Table 2 presents a comparative list of four factors

commonly shared in the representative literature. One of the factors, for example, commonly shared among the cited literature as important for successful RTI implementation pertains to assessment, and the use of assessment data to define performance and define the achievement gap; professional development is another factor commonly shared among the literature.

Table 2 Comparative List of Factors for Successful RTI Implementation

Harlacher & Siler (2011)	Fisher and Frey (2011)	Murakami-Ramalho and Wilcox (2012)
Professional Development	"Clearly, professional development was critical to ensure that RTI efforts at [the school] were successful"	"Understanding that teachers need additional training in intervention instruction to support students"
Staff "Buy In"	"every one of the adult staff members and some peer tutors need to become involved in intervention efforts"	"Striving to engage everyone to work together on the goal"
Leadership	"the school was propelled forward when personnel were assigned the task of coordinating" intervention efforts"	"Leveraging leadership in order to stay the course"
Time for Collaboration (analyze student data)	"Assessments are critical to the operation of an RTI framework"	"Defining the achievement gap"

Professional Development

Professional development is cited as an essential component among necessary factors for student achievement; whereby, teachers' capacity and quality is developed. Research suggests that teacher quality is the single most powerful influence on student achievement (Fisher and Frey, 2011). The challenges of improving student achievement and performance on high-stakes tests add a unique dimension in the need and focus of professional development (Roehrig, Dubosarsky, Mason, Carlson, and Murphy, 2011). In addition to the work to have students successfully perform on a high-stakes test, teachers must develop their knowledge of a particular subject and the skills to conduct

effective teaching and learning. Professional development must necessarily be targeted to address such particulars as curriculum, grade level issues, classroom management, or a new initiative. When a new initiative such as RTI is introduced into a district or a campus, it is essential for training in the initiative to be conducted (Zan and Donegan-Ritter, 2013). It is imperative that teachers and all others who will bear responsibility to implement the initiative are well versed in its systems and protocols to successfully fulfill its intended purpose (Miller, Smith, Curwen, White-Smith, and Calfee, 2014).

Research has addressed the optimal duration of any professional development in order to be effective, and the efficacy of single event versus sustained professional development. The research demonstrates that professional development provided as a single event adds to a teacher's efficacy; however, it is professional development that is sustained, which offers the greatest opportunity for effective change. There is professional development that may take place to address a new initiative and occur over the course of a single academic year; however, it is the professional development that occurs over the course of at least two years that has the most lasting impact on change and student achievement (Capraro, Capraro, Scheurich, Jones, Morgan, Huggins, Corlu, Younes, and Han, 2016; Fisher, Frey, and Nelson, 2002). It becomes incumbent upon school administrators at the district and campus level to consider sustained professional development for the purpose of impacting increased student achievement.

Mathematics Assessment and Intervention

Of particular interest to this literature review is the intersection of assessment and intervention in the study of Mathematics. Assessments fall into two broad categories: norm referenced and criterion referenced. Norm referenced assessments are designed to

rank a student's achievement when compared to large segments of the population. These types of assessments contain items above, at, and below grade level performance standards. Criterion-referenced assessments are designed to rate a student's achievement compared to a standard. Teacher made tests are example of criterion referenced assessments.

Assessment is a way of measuring what students know and expressing what students should learn. "You can't fatten a hog by weighing it," so said a farmer to a governor at a public hearing in order to explain in plain language the dilemma of educational assessment. To be useful to society, assessment must advance education, not merely record its status (Mathematical Sciences Education Board (MSEB), 1993 p. 1).

To achieve national goals for education, educators must measure the things that really count by establishing crucial research- based connections between standards and assessment. Educators should argue for a better balance between educational and measurement concerns in the development and use of mathematics assessments. According to the National Council of Teachers of Mathematics (NCTM, 2006) there are three principles related to content, learning, and equity that may form the basis for new assessments that support emerging national standards in mathematics education:

- The Content Principle --Assessment should reflect the mathematics that is most important for students to learn.
- The Learning Principle -- Assessment should enhance mathematics learning and support good instructional practice.
- The Equity Principle -- Assessment should support every student's opportunity to learn important mathematics (NCTM, 2006, p. 4).

"Despite their benign appearance, these principles contain the seeds of revolution. Few assessments given to students in American today reflect any of these vital principles" (MSEB, 1993, p. 3).

A framework of mandated assessments, commonly referred to as high-stakes tests, was established with the passage of the No Child Left Behind (NCLB) legislation. With NCLB every state was required to use some form of assessment that measures student performance and progress. It was left to each state to decide how to define educational proficiency with the tests using a minimum of three scores: Below Basic, Proficient, and Advanced. Since 1969, the federal Department of Education has given the National Assessment of Educational Progress (NAEP) test to American students to monitor their educational achievement. The NAEP preceded NCLB and states' high-stakes testing. The federal government didn't start requiring states to develop their own standardized tests, however, until 1994, when the Clinton administration changed the Elementary and Secondary Education Act of 1965. (President Johnson created ESEA during the War on Poverty to reduce achievement gaps in public K-12 education.) What the Clinton administration did in 1994 was start requiring that every state receiving federal money for high-poverty schools (i.e. Title 1 funds) begin testing third through eighth graders annually in math and reading. President George W. Bush subsequently moved the testing ball down the court with the No Child Left Behind Act, which requires states to test fourth and eighth graders in math and reading every two years (National Research Council, 2001, p. 31-32).

The Theoretical Perspective for RTI

As previously noted, NCLB and its earlier iterations, utilize student assessment

data to monitor educational achievement, especially within high-poverty schools. When the 2009 reauthorization of NCLB occurred, Title I of the Elementary and Secondary Education Act of 1965 was amended to read as follows: TITLE I--IMPROVING THE ACADEMIC ACHIEVEMENT OF THE DISADVANTAGED.

> The purpose of this title is to ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging State academic achievement standards and state academic assessments (U.S. Department of Education website).

NCLB highlights four areas by which the law's purpose can be accomplished. It is first concerned with ensuring that high-quality academic assessments, accountability systems, teacher preparation and training, curriculum, and instructional materials are all aligned with state standards. A second area regards meeting the needs certain student subgroups: low-achieving students in high-poverty school; limited English proficient students, migratory students, children with disabilities, Indian children, neglected or delinquent students, and young children in need of reading assistance. A third emphasis of NCLB is closing the achievement gap between high- and low-performing students, especially that between disadvantaged students and their more advantaged peers. Finally, NCLB is concerned with holding schools, local educational agencies, and states accountable for improving academic achievement of all students, which includes identifying and restructuring low-performing schools, as well as providing alternatives to students in these low-performing schools. .

NCLB and IDEA 2004 both articulate a focus on "closing the achievement gap between high- and low-performing children, especially the achievement gaps between

minority and nonminority students, and between disadvantaged children and their more advantaged peers" (NCLB, 2002, Public Law PL 107-110 Sec. 1001.3). This focus to understand educational inequality and identify potential solutions reflects a theoretical perspective situated in Critical Race Theory (CRT). CRT "takes us beyond the traditional approaches and understandings of educational inequality…it offers educators and students alike with an alternative perspective in identifying more effective solutions to the challenges students of color face in school," (Zamudio, Russell, Rios, & Bridgeman, 2011, p. 2).

> CRT in education highlights those aspects of society, institutions, school, and classrooms that tell the story of the functions, meanings, causes, and consequences of racial educational inequality (Zamudio et al., p. 3).

CRT poses a challenge to educators and the educational system to consider how long held assumptions about such things as what it means to be educated, to be smart, to be at-risk in schools, and to be academically successful. CRT encourages educators to consider how a student's background, culture, primary language, and cultural environment impact the school experience. CRT presumes the lingual, social, and cultural differences do not in and of themselves indicate cognitive disabilities; thus, providing encouragement to better understand these differences and organize teaching and learning experiences that reflect an awareness and sensitivity to these differences. RTI is an example to encourage educators to consider students' differences and educate accordingly. With RTI "[a]t all levels, attention is on fidelity of implementation, with consideration for cultural and linguistic responsiveness and recognition of student strengths" (NCRTI, 2010, p. 4). Through the lens of CRT, educators are best informed to

fulfill the purposes of NCLB and IDEA 2004 with the RTI model, and provide an equitable educational experience for all students.

Summary

This chapter surveyed the landscape of the Response to Intervention (RTI) model through a review of pertinent literature. The review identified the historical perspective, genesis and development of a common RTI model as defined by the National Center for Response to Intervention (NCRTI), a federally funded center that provides support and guidance to local education agencies throughout the nation in their efforts to implement a RTI system. The chapter continues by describing the particulars of a RTI model, as well as some of the challenges to implementation of the model. The chapter concludes by reviewing literature pertinent to RTI implementation in a mathematics context, as well as a theoretical perspective that situates RTI implementation.

Chapter 3:

Methodology

The purpose of this study was to evaluate the implementation process of the Response to Intervention (RTI) system on a group of third grade students in an elementary school during their study of one mathematics topic. The study evaluated how the RTI practices of the responsible parties, (i.e., the teacher, district instructional facilitator, and campus interventionist) are congruent with the district's RTI system. The research project followed a qualitative research design.

Research Questions

In order to best evaluate the process of implementation of the RTI system on a group of grade three students for a Mathematics topic at one elementary campus, the research project was guided by the following research questions:

- Do campus professional practices for the assignment to RTI tiers of students in a selected third grade math class align with district guidelines?
- Are the instructional strategies utilized in the selected third grade math class at each Tier aligned with the district's RTI guidelines?
- How do the intervention strategies used at each Tier impact student achievement in one teacher's classroom on a pre- and post-test of an individual mathematics topic?

Research Design

This study utilized a qualitative research design. In a qualitative study, I was able to collect, analyze, and interpret various data sources in order to best evaluate the process used to implement the RTI model. These data sources for this study included:

- The results of the math topic pre- and post-test;
- Field notes of semi-structured interviews with the district instructional facilitator, classroom teacher, and campus intervention specialist;
- Field notes from two classroom observations;
- The school district RTI guidelines; and
- RTI related artifacts.

Qualitative research design. Qualitative research is concerned with constructing or interpreting events to find meaning in a reality.

> [Qualitative advocates] contend that multiple-constructed realities abound, that time- and context-free generalizations are neither desirable nor possible, that research is value bound, that it is impossible to differentiate fully causes and effects, that logic flows from specific to general and that knower and known cannot be separated because the subjective knower is he only source of reality (Johnson & Onwuegbuzie, 2004, p. 14).

Essential to qualitative research is the notion that the researcher is trying to determine how the participants arrive at the meaning of a situation, a phenomenon. The researcher wants to gather the participant's perspective on the phenomenon being studied. As a researcher gathers information from the participants, it is not the place of the researcher to judge the situation, it is the role of the researcher to gather information from the participants' perspective and make sense of it in order to add knowledge about the situation (Bodgan & Biklen, 2003). Qualitative research obtains data through multiple methods. This study employed the case study methodology. According to Creswell (2003),

> Case study research is a qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information (e.g., observations, interviews, audiovisual material, and documents and reports), and reports a case description and case-based themes (p. 139).

"The case study is an intensive description and analysis of a phenomenon or social unit as an individual, group, institution, or community" (Merriam, 2002, p. 8), and essential to a case study is the notion of the unit of analysis, not the topic of investigation. The unit of analysis, also referred to as a bounded system (Stake, 1995, Merriam, 1998) delimits the research project and concentrates upon a single phenomenon (the case). The process develops an in-depth description and understanding of the phenomenon. A special feature of this research project is its particularistic nature, since its focus is a particular program and setting. This research project, as a particularistic case study, "can suggest to the reader what to do or what not to do in a similar situation, can examine a specific instance but illuminate a general program, or it may or may not be influenced by the author's bias" (Merrian, 2002, p. 30). This research project was bounded by the RTI experience in one third grade classroom.

The data collection for the case study included several sources. Individual semi-structured interviews were conducted with the district instructional facilitator, the classroom teacher, and the intervention specialist in order to ascertain their experiences with and perceptions of the RTI model. I followed an interview protocol of questions (see Appendix E). I took notes during each interview, and each interview was voice recorded. I conducted two classroom observations during two days of math class, during

which I took notes of such things as differentiated strategies in use by students, how teacher and intervention specialist monitored student work and progress, and student groupings (see Appendix F). Subsequently, the notes and recordings were analyzed to identify emergent themes and ascertain if there existed an alignment between their attitudes, beliefs and practices, and the protocols defined within the district's RTI guidelines. The math topic unit pre- and post-test student results were analyzed, comparing each students pre- and post-test scores, creating a test item analysis (summary of each test item response), as well as a comparison analysis of curriculum objectives assigned to each test item and students' responses. The analysis included results for all students, as well as disaggregation by Tiers.

Research Process. The grade three mathematics course is part of the Pearson Education, Inc.'s *enVisionMATH Common Core* (2012) curriculum, which is the district approved mathematics curriculum for use by all its kindergarten – grade five schools. The grade three mathematics course is divided by "topics" and this study focused Understanding Fractions, which was next to be addressed when the study commenced. A topic unit is designed to include several lessons covered over a series of class meetings, for example, eleven lessons. Each topic includes objectives, which define what content students are expected to master over the course of the lessons. Prior to the start of study of the topic a pre-test was administered for the topic to be addressed. The pre-test is included among the curriculum's instructional materials, and was administered to all students in the class. Upon completion of the sequence of instruction prescribed for the topic, the post-test provided with the curriculum materials was administered to all students in the class (see Appendix B).

I was on-site to conduct two math class observations during the topic's instruction cycle. Also I visited with the district instructional facilitator, the classroom teacher, and the intervention specialist, and conducted individual semi-structured interviews utilizing guiding questions (see Appendix E).

The pre- and post-tests were administered by the teacher, who scored all tests; subsequently, a copy of each student's test results was provided to me. The teacher retained the original copies of student tests, and provided me with a copy that included no student identifiable marks, in order to maintain student confidentiality. The teacher assigned a random alpha-numeric label to each test copy and maintained the only master roster of student names and associated alpha-numeric label (e.g., C127). Once test results were received, I commenced to analyze the results.

The test results, any documentation such as the district RTI guidelines, artifacts, and field notes from the visits with professionals and classroom observation were reviewed and analyzed. I integrated the various data sources and employed triangulation methods with all of the data. Triangulation is an "attempt to map out, or explain more fully, the richness and complexity of human behavior by studying it from more than one standpoint" (Bulsara, n/d, p. 25). I noted either a lack of convergence or convergence that strengthens a situation. Triangulation's primary purpose is for confirmation, corroboration, or cross-validation within the study (Farrell, 2012). Essential to the data analysis was triangulating the data to evaluate whether the RTI process is being implemented with fidelity to district guidelines, and if data can substantiate that a RTI model has any impact on student achievement in understanding a mathematics topic.

Once data analysis was concluded, I articulated my discoveries and conclusions of the study.

The research project utilized all instructional materials included as part of a mathematics topic including a unit pre- and post-test. I coordinated with the teacher a time to commence the research project. The mutually agreed upon time coincided with the start of a new topic unit of study.

Participants

The instructional facilitator. The instructional facilitator is a veteran educator, hired by the district to assist selected campuses. The instructional facilitator's role is to provide guidance in mathematics education best practices, which includes training principals and teachers in these practices. Training areas include: teambuilding, Systems Thinking training, Common Core Standards, Literacy, Data-Driven Decision Making, Formative Assessments, Differentiated Instruction, and mathematics best practices. Additionally, the instructional facilitator performs classroom observations in order to provide feedback and assistance to the classroom teacher in agreed upon areas.

The campus interventionist. The campus interventionist has 34 years educational experience. She was a classroom teacher for 28 years and six as math coordinator in a local school district. Upon retirement she began her work as the campus interventionist and is in her fifth year at the school. She works exclusively with students assigned to RTI Tier 2 in a pull-out setting.

The classroom teacher. The classroom teacher is in the ninth year as elementary level teacher. The teacher possesses a state Education Specialist certification, and holds a Master's Degree in Educational Administration. The teacher was initially trained in the

RTI model at the beginning of her tenure with the district, and continues to participate in annual RTI educator training.

The students. The students are enrolled at a campus of a district in the state of Missouri. The students are one section of grade three classes at the school. The class is composed of a random sample representing diversity in gender, academic ability (based on prior year's records), ethnicity, gifted and talented classification, and English Language Leaner (ELL) classification. The class mix was determined prior to the start of the current school year, and verified by building administration. The class demographics mirror those of the campus (see Table3).

Setting

The study took place on the campus of an elementary school located in a school district in the state of Missouri. The section of mathematics class is one of three on the site. There is one teacher for this section of mathematics class. The teacher volunteered to participate with the students in this study. During the 2015-2016 academic year, the school's student demographics included:

Table 3 Campus Student Demographics

Characteristic	Representation
African-American	47.8%
Caucasian	20.0%
Hispanic	19.5%
Pacific Islander	0.2%
Asian Pacific Islander	1.1%
Students Eligible for NSLP Free or Reduced Price Lunch Program	100.0%
Students Considered to be At-Risk of Failing Academically	90.0%

Instrumentation

In addition to the pre- and post-test, guiding questions were used during the semi-structured interviews with the district instructional facilitator, teacher, and campus intervention specialist (see Appendix E). The questions were designed to elicit responses from the three professional participants regarding their experience, attitudes, and beliefs about the use and implementation of the district's RTI model. The validity of the guiding questions were presumed, since the professionals' responses measured what the questions are supposed to measure, i.e., eliciting information about the RTI implementation process from those within the organization who are responsible for implementation.

Procedures

Upon receipt of IRB approval, I distributed a participation letter to each professional: district instructional facilitator, classroom teacher, and intervention specialist. The participation letter detailed the participants' commitment and scope of involvement. The participation letter included an acknowledgement as indicated by the participant's signature (see Appendix C). The approval to conduct research within the district included protocols for use of student data and district RTI resources (see Appendix D). The duration of the study was determined by the scope and sequence of the Mathematics Understanding Fractions topic that was selected, as identified in the research design section.

Data Analysis

Data sources included: (a) field notes from visits with school personnel; (b) classroom observation notes; (c) comparison of district RTI guidelines with notes and materials provided by teacher; (d) student RTI Tier assignment roster; and, (e) students' pre- and post-test results. Data analysis took place in the following ways:

- Field notes included the three participants' responses to open-ended interview questions; the interviews were recorded, recordings were reviewed three times, transcripts were prepared based on common terms or ideas where shared by all participants, or for an individual idea that surfaced as an outlier.
- Classroom observation notes included a review of the activities assigned to each student per group to determine if the same activity was assigned to all students, or were activities differentiated by student.
- Classroom environment notes; wherein, the classroom bulletin boards, room arrangement, strategies utilized to assign students to groups, ancillary materials such as math manipulatives, lighting, and other classroom décor were reviewed.
- District RTI guidelines were open side-by-side with handouts and materials provided by teacher during the respective open-ended interview, and a comparison was made to ascertain if materials were mentioned or included as part of district RTI guidelines, or not.
- Student RTI Tier assignments roster was reviewed in discussion with teacher, and notes made as teacher explained process utilized to assign students to RTI Tier1, 2 or 3; the Tier assignment discussion also included teacher information regarding a student's continuance or discontinuance in an RTI Tier assignment.

- Pre- and post-test scores of each pupil were examined to see what degree of improvement each student and all students made (e.g., was there an X% increase/decrease in student scores, pre-test compared to post-test).
- A per pupil test item analysis, as well as summary and frequency analyses was conducted, in order to identify the frequency that each test item was chosen; additionally, the frequency summary will be compared to the state objective that is aligned to each test item, which may serve to inform the teacher of need to re-teach certain objectives.
- A per pupil analysis of which RTI interventions were utilized; to identify which instructional strategies were assigned for use with students at each Tier, and align them to those suggested for use as included in the district RTI guidelines (e.g., if a student is assigned to Tier 2, are the strategies being utilized different from those in use at Tier 1 and/or Tier 3, and what are those strategies).
- A comparison of district RTI guidelines with my notes to ascertain the degree to which RTI instructional practices aligned with guidelines

Validity

The validity, the strength of the study's inferences and conclusions, is based on the integrity of all data sources. The validity of the pre- and post-tests is substantiated by statements included in the curriculum's materials provided by the developer and publisher, Pearson Education, Inc. Pearson engaged the services of Planning, Research, and Evaluation Services (PRES) to conduct a two-year study designed to examine the effectiveness of the 2009 Pearson enVisionMATH program. "In sum, results from this

two-year RCT show that students who use the enVisionMATH program perform significantly better than students using other math programs across multiple areas of math learning" (PRES Associates, 2009, p. 2-5).

The RTI system is a district approved system for use in its schools, and practiced by those who have been trained in the RTI system. Its validity is ascribed to the sources used by the district to create its RTI system; the sources include those developed and identified by national organizations, researchers, and the U.S. Department of Education. As previously mentioned triangulation methods were employed to engage several perspectives to analyze and interpret the data. Triangulation occurred as data were reviewed and compared by the researcher, an independent educational consultant, and a professional educator.

Ethical Considerations

The study commenced only after full approval was received from the university's Institutional Review Board (IRB). Upon receipt of IRB approval, the researcher distributed a participation letter to each professional: district instructional facilitator, classroom teacher, and intervention specialist. The participation letter detailed the participants' commitment and scope of involvement. The participation letter was accompanied by an acknowledgement form to which is affixed the participants signature (see Appendix C). Approval to conduct research was secured from the school district. The approval to conduct research within the district included protocols for use of student data and district RTI resources (see Appendix D). Only after IRB approval, completed participant acknowledgement forms, and district approval to conduct research were obtained did the study commence.

In order to maintain confidentiality of students, all student information was masked, utilizing unidentifiable numeric labels. In adherence to Family Educational Rights and privacy Act (FERPA) guidelines, only the teacher knew actual identity of student information. All data sources were stored in a secure location accessible only to the researcher, and selectively shared with dissertation committee members for their expertise input and feedback. All data sources will be retained for a period of one year from date of successful dissertation final oral defense, at which time they will be destroyed by such mans as shredding. At all times, the names of all participants will remain confidential.

Summary

This chapter addressed the purpose of this study, which was to evaluate the implementation process of the Response to Intervention (RTI) system on a group of third grade students in an elementary school during their study of one mathematics topic. The study was concerned with the process to implement RTI in a third grade math class; it evaluated how the RTI practices of the responsible parties, i.e., the teacher, district instructional facilitator, and campus interventionist align with the district's articulated RTI system. The study also explored the professional staff's preparedness, attitudes toward, and understanding of the district's RTI system. The chapter also addressed the components of the study's research design: research questions, participants, and data collection, security, and analysis

Chapter Four

Data Analysis and Findings

This chapter presents the data analysis and findings, which were discovered during the research process of the study. The findings are presented in response to the three respective research questions. The chapter ends with the presentation of emergent themes that were revealed through the data analysis process.

Research question 1: Do campus professional practices for the assignment to RTI tiers of students in a selected third grade math class align with district guidelines?

The *Response to Intervention District Plan* contains the district's RTI guidelines and is updated and distributed each academic year. According to the district RTI facilitator, the district guidelines "are reviewed each year by a district leadership team, and then made available online." The guidelines include all the attendant protocols for implementation of RTI in its schools, as well as forms to accompany implementation practices. For example, the Student Support Team Information Gathering Packet, is comprised of several pages, templates to be utilized and completed to ascertain a students' needs, and determination of RTI placement. I was provided copies of the forms utilized by the student support team when initiating consideration for RTI interventions and ongoing monitoring of RTI interventions' success. These forms were copies of those included in the district guidelines.

The Student Support Team (SST) is the group wherein the discussion related to student progress and the possibility of assignment to RTI Tier 2 or 3 takes place. It is in this setting where a teacher initially presents concerns regarding a student's academic performance and progress. According to the district facilitator, "the SST evaluates

student performance. They ask each other how are students grouped, how do they sit, what resources are being used, what they have tried." The SST begins the process by reviewing the student's progress to-date and examining the manifestations of deficiency. Interventions currently in place are reviewed and team members ask questions about the situation, which is followed by reviewing potential interventions that the teacher or interventionist may consider utilizing to support the student. Once a plan is developed, progress monitoring is put in place; wherein, weekly, for six weeks, the teacher notes the student's progress. Subsequently, the SST reconvenes to review the student's file and make appropriate decision to continue or discontinue RTI Tier assignment.

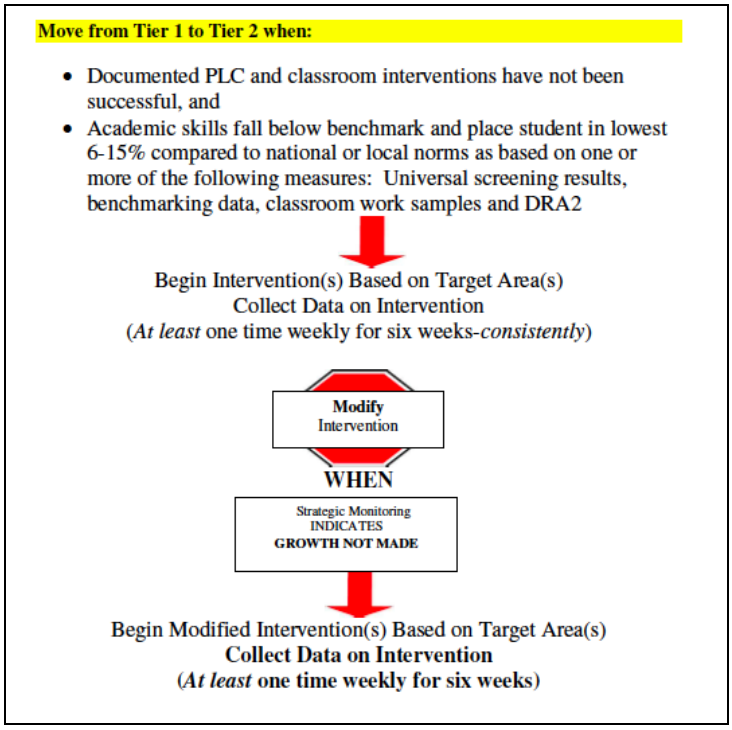


Figure 1 Moving from Tier 1 to Tier 2

The guidelines provide a process model for determining how, if, or why a student might be moved from one Tier to another Tier. There is a model for each point of transition, Tier 1 to Tier 2, and Tier 2 to Tier 3 (see Figure 1). The guidelines also include

frameworks for each Tier, and baseline guides for staff when considering what course of action will best serve the student. Each framework includes seven elements: focus, program, grouping, time, assessment, interventionist, and setting. Each element determines who, what, where, when, and how for students in the respective Tier.

The framework for Tier 1 includes: all students as its focus; the use of Envision Math as instructional program; whole group instruction; 50-60 minute per day instructional period; common assessments, unit tests, and AIMSweb as assessment vehicles; classroom teacher as interventionist; and, the general education classroom as the setting (see Figure 2).

Math	
Focus	For ALL students in class
Program	Elementary-Envision Math Middle-Math Connects
Grouping	Whole Group Instruction
Time	50-60 minutes per day (kindergarten-middle)
Assessment	Common Assessments, Unit Tests, AIMSweb (Early Numeracy, MComp,MCAP)
Interventionist	Classroom Teacher
Setting	General Education Classroom

Figure 2 Tier 1 Framework

The district guidelines next present the framework for Tier 2 as well as the basic elements that identify Tier 2. These guidelines provide the distinguishing characteristics of Tier 2 interventions, which include its focus, program, grouping, time, assessment, interventionist, and setting (see Figure 3).

Math	
Focus	For student identified with marked difficulties and have not responded to Tier 1 efforts
Program	Elementary-Envision Math Middle-Math Connects **Plus available options:** K-2: FASTmath, Math Reflex, Envision Math Intervention Tools, Number Core 3-5: FASTmath, Math Reflex, Envision Math Intervention Tools, Do the Math MS: FASTmath, Math Reflex, Math Connects Intervention Tools, Do the Math
Grouping	Small, flexible group in or out of classroom related to targeted skill areas
Time	General education classroom block of math instruction plus recommended selected intervention time and days determined by standard treatment protocol and student needs
Assessment	AIMSweb strategic monitoring 1 time per month on target skill to ensure adequate progress and learning or program based monitoring assessments
Interventionist	Classroom Teacher and/or Interventionist
Setting	General education classroom and/or alternative setting

Figure 3 Tier 2 Framework

The basic elements of Tier 2 instruction call for supporting students in the general education classroom who have not met Tier 1 benchmarks; targeting students who have significantly lower levels of performance than their peers; ongoing assessment of students; supplemental intervention and frequent progress monitoring; same-ability small groups; and, intervention provided by classroom teacher with additional support of other personnel (see Figure 3). The teacher's and district facilitator's comments resonated with the district guidelines for Tier 2. The teacher stated,

> Tier 1 students typically do not need additional support. Tier 2 students are those who need extra push, bubble students, they need extra help. In Tier 2 I look for trends in grouping, what commonalities these students share, and I brainstorm activities that would work with the group. They meet three times a week for fifteen minutes or so to implement interventions. Along the way, I do progress monitoring to see progress in mastering the particular skill. If not, I meet with the [SST] team again, to see if other interventions might work. This is the second attempt at interventions. And, it's not always pencil and paper, but observations I make; I don't always need a test to tell me.

The district facilitator stated,

> As the district facilitator, I don't get involved with the actual RTI implementation, but as I sit in RTI meetings I look and listen for certain things: How students are grouped, how do they sit, what resources are being used, what has been tried, has teacher considered something like math challenge as a problem solving event.

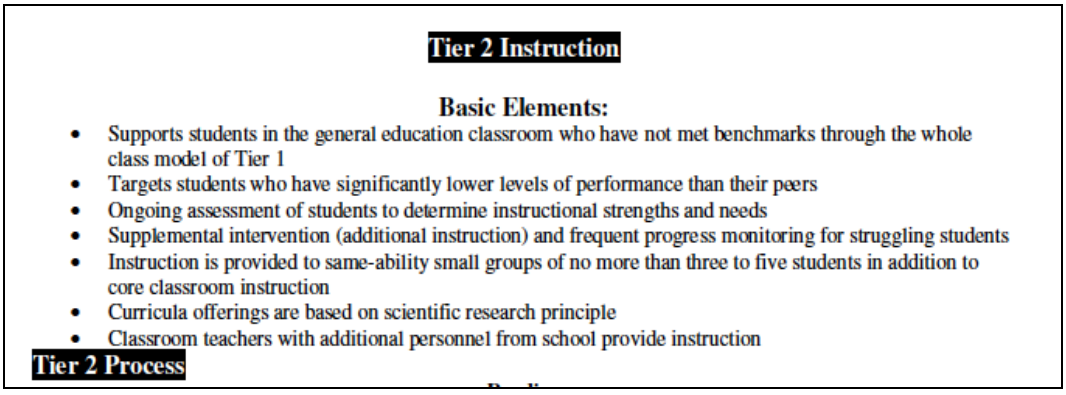
The district guidelines specifically mention AIMSweb as the assessment vehicle to be utilized for progress monitoring. The three interviewees each discussed progress monitoring at Tier 2, and unanimously mentioned AIMSweb as the primary vehicle utilized for progress monitoring. The teacher stated, "We use AIMSweb tracker to see just how well this child is progressing." The district facilitator stated, "Testing happens, but it is only one data point, since AIMSweb is used to monitor progress." The campus interventionist mentioned her regular use of AIMSweb; she stated, "There are a series of tests administered every other week from AIMSweb. I look at the test and then look at items they missed or skipped or don't reach and try to structure my work around them with those skills."

According to the district guidelines, AIMSweb is a progress monitoring system based on direct, frequent and continuous student assessment is used as the district universal screening tool. AIMSweb assessment meet professional standards for reliability and validity are research based, and independent of the district's curriculum. AIMSweb is designed to be independent of any district's curriculum to ensure equitability regardless of teacher differences, and changes to curriculum over time.

AIMSweb is a component of Moodle, which is the district's central system that houses students' digital assessment data. Moodle is a commercial technology to which

the district subscribes. It is a learning platform designed to provide a single, robust integrated system of academic resources and data. It is a warehouse of resources from which a teacher may draw to use with students, as well as a repository of student data. AIMSweb is another technology to which the district subscribes. AIMSweb is used for universal screening and progress monitoring; it is a general outcome measurement tool, commonly known as a form of curriculum-based measurement (CBM). CBM is referenced in the district guidelines, and AIMSweb is the vehicle for practice. AIMSweb, as an online skills assessment tool, assesses overall performance of key foundational skills at each grade level. Students complete online tasks via AIMSweb, which assesses their mastery of particular skills. AIMSweb assists teachers to identify the competency level of students on particular math skills as they contemplate possible assignment to Tier 2 or 3. Moodle and AIMSweb were consistently mentioned during the semi-structured interviews as tools utilized in the RTI process.

Assignment to Tier 2 or 3 is based on district guidelines, which include elements to be in place for each Tier.



Tier 2 Instruction

Basic Elements:

- Supports students in the general education classroom who have not met benchmarks through the whole class model of Tier 1
- Targets students who have significantly lower levels of performance than their peers
- Ongoing assessment of students to determine instructional strengths and needs
- Supplemental intervention (additional instruction) and frequent progress monitoring for struggling students
- Instruction is provided to same-ability small groups of no more than three to five students in addition to core classroom instruction
- Curricula offerings are based on scientific research principle
- Classroom teachers with additional personnel from school provide instruction

Tier 2 Process

Figure 4 Tier 2 Instruction Basic Elements

The interviews, review of documents provided by the classroom teacher and district guidelines indicate the teacher follows all RTI protocols as outlined in the district

guidelines when considering placement in Tier 2 or Tier 3. She and her colleagues administer universal screening three times per year, as prescribed, utilizing AIMSweb. This is the first opportunity to identify a student whose skills do not meet benchmark. The student's AIMSweb performance, if less than 70% mastery, will present occasion for the grade level SST team to meet and consider the degree of student's needs; consideration also includes student's data files, which includes past performance on other assessments and student products. Notice is given to parents that SST team will be meeting to discuss the student. If, as prescribed by district guidelines, the SST team believes it is in best interest of the student to be assigned to Tier 2, interventions will be agreed upon and provided for at least six weeks, during which time progress monitoring will take place. Tier 2 interventions will be provided both in classroom and by the campus interventionist away from classroom. The campus interventionist will include among her routine, regular use of AIMSweb to monitor student master of skills in question. Every six weeks, the SST team convenes to discuss student progress; if adequate progress observed, the team has option to maintain or discontinue Tier 2 interventions. The decision to continue or discontinue interventions always takes place within the SST team setting. The teacher and campus interventionist agreed that even when adequate progress has been made, the student remains in Tier 2 interventions as a proactive measure. Tier 2 is considered per district guidelines, when students' performance on AIMSweb assessment is among lowest 5% of student performance, and Tier 2 interventions have not been successful for at least two consecutive six-week periods. Students assigned to Tier 3 meet with interventionist in an alternative setting, they do not receive additional services in regular classroom. My analysis revealed this

process is consistent with district guidelines; however, during each interview a confidence in knowledge of the district guidelines was not suggested.

During the interviews, the participants each stated that they were aware of the district guidelines, but they weren't necessarily intimately familiar with them. The teacher stated, "It's not a document I reference on a daily basis, we've not been trained on how to use it; however, if I have questions, I first discuss with the team and then move on to district facilitator." The district facilitator stated, "I don't know the document verbatim, but if the document were available to me, I could comfortably walk someone through it." The campus interventionist stated, "The first district I worked, I went through training, but since then I have not gone to any. I have someone over me, and she keeps track of that and lets me know what I need to know." Despite the lack of confidence about district guidelines, RTI implementation practice resonates with district guidelines. At the time of my classroom observations, there were five students assigned to Tier 2, and I reviewed each of these students' files to confirm district forms were in use, which they were. According to the district RTI facilitator, "the school has a strong intervention system," and my analysis confirmed this to be true. There appeared no discrepancies when practice was compared to district guidelines.

There were no students in the participant classroom assigned to Tier 3. According to the teacher, all students met criteria for Tier 1 or 2. No student demonstrated deficiencies that would warrant the SST review the student's performance and consideration of assignment to Tier 3. The guidelines provided parallel processes and frameworks to be used in determination and possible assignment of a student to Tier 3 (see Figure 5). The teacher and district facilitator both stated that the process and

framework for identifying and assigning students to Tier 3 followed the same progression as for Tier 2, and referred to the following two diagrams (see Figure 6 and 7).

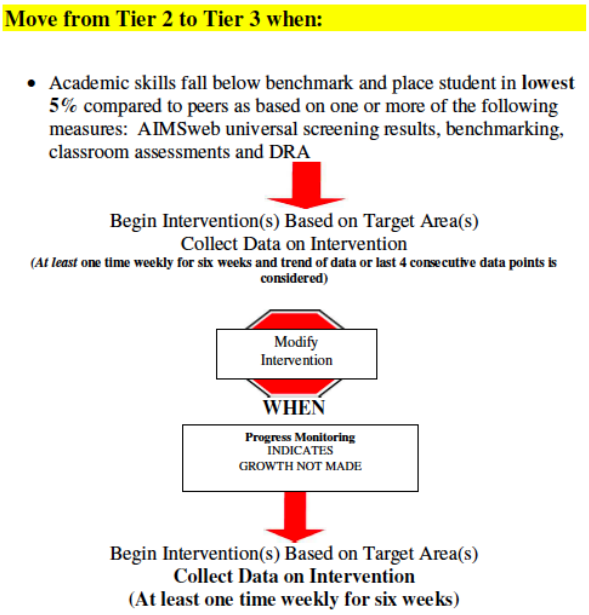


Figure 5 Moving from Tier 2 to Tier 3

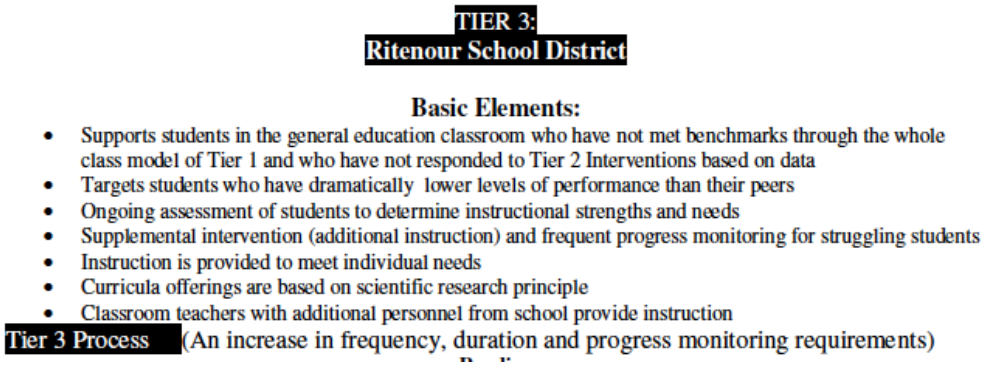


Figure 6 Elements of Tier 3 Instruction

Math

Focus	For student identified with marked difficulties and have not responded to Tier 1 efforts
Program	Elementary-Envision Math Middle-Math Connects **Plus available options:** K-2: FASTmath, Envision Math Intervention Tools, Number Core, I-Ready 3-5: FASTmath, Envision Math Intervention Tools, Do the Math, I-Ready MS: FASTmath, Math Connects Intervention Tools, Do the Math, I-Ready
Grouping	Small, flexible group in or out of classroom related to targeted skill areas
Time	General education classroom block of math instruction plus recommended selected intervention time and days determined by standard treatment protocol and student needs
Assessment	AIMSweb progress monitoring approximately every ten days on target skill to ensure adequate progress and learning or program based monitoring assessments
Interventionist	Interventionist
Setting	alternative setting

Behavior

Figure 7 Tier 3 Framework

Research question 2: Are the instructional strategies utilized in the selected third grade math class at each Tier aligned with the district's RTI guidelines?

The review of the instructional strategies included those pertinent to Tier 1 and Tier 2, only, since there were no Tier 3 students in the math class. The program feature of the district guidelines' Tier 1 framework prescribes Envision Math as the program source. The Tier 2 framework for mathematics prescribes Envision Math as the primary program source, and provides additional available options for third grade, which include FASTmath, Math Reflex, Envision Math Intervention Tools, and Do the Math. The guidelines specify additional options to be used with Tier 2 students.

I did not carry with me a specific rubric to use when making the classroom observations, I only carried a notebook and a pen; however, as a school administrator often involved with observing teachers, and my own experience as a math teacher, I entered the classroom prepared to look for certain things. I was curious about the classroom environment and how the classroom would be decorated and arranged. I was curious to witness the student to teacher and student to student interactions. I wanted to see how students were grouped, and the activities with which the students were involved

and engaged. Finally, I was curious to observe if I could identify differentiated instructional strategies in place for students, especially those who were assigned to Tier 2 for interventions.

The classroom environment was welcoming. Bulletin boards were decorated with thematic elements, as well as student work. There was one bulletin board that displayed math fraction samples and ideas, but none of these indicated applicability to a particular tier; they were universal. Students were seated in groups of 4-6. There was an area of the classroom arranged for teacher to work with individual or small group of students, and there was an area with no tables or chairs, where students could sit on the floor and work with manipulatives or other activities. Students were involved with different worksheets and activities, which did not initially indicate differentiation; it was only upon closer review that I observed that some activities included more challenging approaches to understanding fractions. Generally, students were engaged in the same activity, without distinction in activities for Tier 2 students. When I questioned the teacher about this she indicated that it was early in the unit and within a few days she would identify students' needs and differentiation would be more obvious; initially, it was only the interventionist that would provide differentiation for Tier 2 students during that pull-out time.

I was next interested to observe how the additional options named in district guidelines were in place and being utilized with the third grade Tier 2 students. The teacher acknowledged that the options mentioned in the guidelines were available; however, there were other computer-based programs that were now being used more often. The interventionist offered that the newer computer programs provided

customization features that made them more attractive than the paper and pencil options, although she did regularly include worksheets and games that she's accumulated through the years and, she believes, have served the students well. The online technologies to which the district subscribes are designed to offer ancillary resources to administrators, teachers, students, and parents. The computer-based resources include such applications and programs as AIMSweb, iReady, Mobymax, Do The Math, and Khan Academy. According to the district RTI facilitator, "I know what systems teachers use: Mobymax, iReady, Kahn Academy, computer based interventions, also the use of more traditional paper and pencil interventions. They maintain shared folders so as students move from year to year, teachers will know what interventions have been used in the RTI process."

During my observations, I reviewed the computer-based resources to better understand how each differs from the other, as well as better understand what each is designed to provide in regards to math. AIMSweb, as previously discussed, functions essentially to assess students' progress and mastery of particular math skills. Teachers may choose a particular skill or set of skills on which a student will be assessed; depending on the student's performance, the teacher is better informed to provide targeted interventions. Mobymax is designed to create individualized education plans for students. It is utilized by all students, but its design differentiates based on students' initial performance and subsequent performances; thus, as a Tier 2 intervention the algorithms of the program will present students with problems and challenges appropriate to their skill levels. Mobymax includes direct and discovery instruction by such things as straightforward multiple-choice questions, or highly animated simulation challenges. Its aim is to develop deductive cognitive skills. iReady is similar to Mobymax in its purpose

and style of delivery; however, it is strategically designed to address the Common Core standards. iReady activities determine mastery based on a students' responses being aligned to common core standards. Do The Math is designed to reinforce critical math foundations such as computation, number sense, and problem solving. It uses online tools and interactive games. Khan Academy is a repository of instructional strategies. Teachers, for example, may access Khan Academy online and choose by grade level particular math skills to be addressed. The math skills are addressed in a variety of ways: short two-three minute instructional videos, games, simulated activities, or straightforward multiple-choice items. However, even the multiple-choice items are animated, and designed to engage and captivate a student.

A student's assignment to Tier 2 or Tier 3 and the attendant instructional strategies first begin with the administration of AIMSweb assessment and math topic pre-test; depending on student performance on these assessments, a Student Support Team (SST) meeting may be convened. If convened, not only the AIMSweb and pre-test results are considered, but other student data are reviewed. According to the teacher, "I am a member of that committee; we meet weekly to discuss behavioral and academic interventions to use with each student; we reference various data points to come up with interventions; we look at six-week collection of data and assess if need to change intervention; we progress monitor regularly." According to all three staff interviewed, SST is purposeful to identify strategies for use in RTI Tier 2 and 3 that are not included in regular classroom. The campus interventionist stated, "I use Do The Math. I pull in additional resources, what is available in school and what I have from previous work. I have lots of resources to use, which includes those that are available to me as the

interventionist and not for use in regular classroom." The campus interventionist, with her many years of experience, has accumulated resources that the campus had not seen which provide variety for students. Additionally, the computer-based applications are controlled by administrators. They are able to control to what extent an individual may access certain materials. For example, Mobymax may have 100+ addition math facts activities, but only the first fifty are accessible to the classroom teacher; the remaining fifty activities are reserved for use by the interventionist, and access to these is controlled through password protection.

The district facilitator commented on her role as a non-campus participant, since she did not participate in the SST team meetings. Her confidence was tempered only because she was not an active participant in the daily on-campus RTI implementation, reflecting her role as a coach or facilitator to be called upon as an external resource.

> The school has a strong intervention system, but because of the nature of my work as a coach or facilitator, I don't have time and much role in implementation, but by notes and student files, I know it's in place. I have not been part of SST meetings, but have been at data team meetings when they meet with district data manager; what interventions have been used, if they're going to move students from tier to tier; various options they're going to exercise with particular students. And, while it's not immediate, I can tell when RTI is in place by homework and intervention strategies, I can tell what tier students are on, even though it may not be abundantly clear when I first walk into classroom.

As previously mentioned, during my classroom observations, I did not recognize any bulletin board displays, or other classroom artifacts that were specific to

differentiated strategies and interventions, notably nothing marked that would indicate strategies assigned to Tier 2 or 3 interventions. The students were seated in groups; however, all students were engaged in the same activity, no differentiation of strategies or interventions were evident. When visiting with the classroom teacher she informed me that differentiated interventions for Tier 2 students were in place but not in use on the day I visited.

My notes from my classroom observations and discussions with the teacher, district facilitator, and campus interventionist revealed how each shared concerns. While the SST has done its work to assign students to Tier 2 and articulating attendant strategies, the time to faithfully implement Tier 2 interventions with the campus interventionist is difficult. The changes in the daily schedule on a given day, as well as providing interventions as a pull-out separate from the regular math class present challenges. For example, the campus interventionist offered, "I compete with P.E. and other specials. Students don't want to miss those classes, and I believe they are important for a well-rounded school experience." According to the district facilitator, there are at least three challenges to implementing RTI. First, there is the daily schedule and structure of the typical school day and the challenge presented by a full school day, how to fit the required additional time for RTI into an already full school day. This is followed by a traditionally structured curriculum, which makes it difficult stop as necessary, to provide required reinforcement or assessment of individual students' needs. Lastly, the uncertainty of teachers' capacities to effectively implement RTI causes concern. The teachers may be committed; however, without adequate training, they will not be able to fully implement RTI and have students enjoy its greatest benefits.

The district facilitator explained,

> A big challenge is the structure of the day itself, and the curriculum. With RTI you need to have enough flexibility to stop what they are doing and get what they need, and move seamlessly between regular classroom that's on grade level and what they need. I just don't feel our system is prepared to provide that. Part of this is how public schools function. The fact that students have 6.5 hours of instruction compared to other systems around the world where students have 7-8 hours of instruction. Another thing is teachers may not have skill set to effectively implement RTI interventions. They lack training, so cannot effectively utilize diagnostics, interventions, etc. Another thing is that there are quite a few students in second and third grade who particularly need interventions. If you have two students, it's doable. But 5-7 students who need interventions and it's harder to give them interventions as they need; thus, we offer before and after school sessions.

While on campus for observations, the teacher and district facilitator separately offered supportive comments of how they arrived at intervention strategies. The district facilitator stated, "You know, for a first year teacher, the nice thing about the campus is that teachers really do take care of each other. First recommendation is to talk to colleagues." The teacher stated, "The team really does a lot of supporting the group. If that doesn't work we can talk to the principal, she has extensive knowledge of RTI, if not we can talk to district coordinator, she has lots of knowledge for input."

Research question 3: How do the intervention strategies used at each Tier impact student achievement in one teacher's classroom on a pre- and post-test of an individual mathematics topic?

The math class that was the setting for the study included 23 students. There were 18 Tier 1 students, five Tier 2 students, and no Tier 3 students. The math curriculum is framed by the Envision Math program, which is divided into 18 topics to span the academic year. At the time of the study, Topic 9 was being addressed in the math class. Topic 9 is Mathematics Understanding Fractions. The Topic 9 test, which is aligned to the lessons being taught during the timeframe of this study, was used as the pre- and post-test (see Appendix B). The topic test is provided by the publisher of the math curriculum. The publisher additionally provides to the school, as a subscriber to its services online resources, a test analysis report. Utilizing this feature, the students completed the pre- and post-test online, and it was possible to produce a report that included the alignment of test items with the skills that students have mastered or that require re-teaching. The topic test included 20 items, which assessed eight mathematics skills related to fractions, through a series of eight lessons. A period of 28 calendar days elapsed between the time of the pre-test administration and the post-test administration, approximately one month of instruction. The tests included the topics that were addressed in each lesson, where each topic is aligned to a common core standard (see Table 4).

Table 4 Mastery for Topic 9 Test

Mastery for Topic 9 Test		
Standard	Lesson	Topic
S1	9-1	Dividing Regions into Equal Parts
S2	9-2	Fractions and Regions
S3	9-3	Fractions and Sets
S4	9-4	Fractional Parts of a Set
S5	9-5	Locating Fractions on the Number Line
S6	9-6	Benchmark Fractions
S7	9-7	Fractions and Length
S8	9-8	Problem Solving: Making a Table and Look for a Pattern

The Test Mastery Report gives a summary of each Tier 2 student's performance on the Topic 9 Test as a pre-test and post-test (see Table 5). I was able to see that three of five students' scores improved. Student 1's score improved 25%, student 3's score improved 25%, and student 5's score improved 25%. Students 2 and 4 did not take the pre-test; student 2's score on post-test did not meet 50% required to move to next topic without continued support. Student 5's score on post-test did meet 70% required to demonstrate mastery. Based on district guidelines, students who scored at least 70% would be eligible consideration for reassignment from Tier 2 to Tier 1; however, this singular test was not sufficient to establish a trend of improved student performance, which is necessary to reassign a student. The teacher shared it was hoped that the additional support provided through Tier 2 interventions would contribute to students' improved performances and the interventions would continue for remainder of semester. While all Tier 2 students demonstrated improved results from pre- to post-test, those whose growth did not meet 70% mastery will receive intensified interventions to ensure they do not fall further behind. This is a good example of how assessment results can provide impetus for differentiation. The two students that did not take the pre-test

provided an opportunity to discuss with the teacher what follow up would take place to identify why these students did not take the test. Is daily attendance an issue for these students? And, if regular attendance is an issue, might this be a factor in why student's performance is deficient.

An analysis of the skills mastered by students who completed both pre-test to post-test, does not consistently demonstrate students' mastery improved. The sample size is too small to allow for any generalization or identification of any trend. The students' results were too disparate. These results brought more questions. Student 1 demonstrated mastery of S5 on pre-test but did not demonstrate mastery of same skill on post-test; likewise, S8. Student 1 did, however, demonstrate mastery on S3 and S7 from pre- to post-test. Students 3 and 5 did demonstrate mastery on post-test for skills previously not mastered: Student 3 demonstrated mastery on S7 from pre- to post-test; Student 5 demonstrated mastery on S2, S5, and S8 from pre- to post-test. It is not possible to provide the same analysis for students' 2 and 4 performances, since neither took the pre-test.

Table 5 Test Mastery Report (Tier 2 Students)

Topic 9 Test Mastery Report (Tier 2 Students)										
Student	Pre- & Post-Test	Test Score	S1	S2	S3	S4	S5	S6	S7	S8
1	pre	55%	*	*	X	X	*	X	X	*
	post	75%	*	*	*	X	X	X	*	X
2	pre		N	N	N	N	N	N	N	N
	post	40%	X	X	X	X	X	X	X	X
3	pre	35%	*	X	X	X	X	X	X	*
	post	60%	*	X	X	X	X	X	*	*
4	pre		N	N	N	N	N	N	N	N
	post	70%	*	*	X	*	X	X	X	*
5	pre	50%	*	X	X	X	X	X	*	X
	post	75%	*	*	X	X	*	X	*	*
Mastery Legend:			* = Mastered X = Not Mastered N = Not Tested							

Figure 8 provides a snapshot of the post-test performance for all students. According to district protocols, a student need only score a 70% to be considered for exit from Tier 2 or Tier 3. Two of five Tier 2 students scored a 75%, one scored a 70%, one scored a 60%, and one scored a 40%. The average score for Tier 2 students was 64%. There were no students assigned to Tier 3. There were eighteen Tier 1 students: seven scored 80-90%, four scored 70-75%, seven scored between 40-65%, and the average score for Tier 1 students was 71%. These results, especially for students who scored less than 70%, will be compared to scores for prior topic tests. The teacher discussed her efforts to identify a trend for each student, and comparing topic test results allowed her to do so. The teacher looked for steady if marked improvement test-to-test; where this is not occurring, the student's file is taken to the SST for review.

	Post-Test Performance	
	Tier 1	Tier 2
	Number of Students	Number of students
90+%	2	
85%	3	
80%	2	
75%	2	2
70%	2	1
65%	3	
60%	2	1
55%		
50%		
45%	1	
40%	1	1
Total # of Students	18	5
Average Score	71%	64%

Figure 8 Post-Test Performance

Themes

After completing the data analysis, three themes emerged. Each theme is derived from a comparison of data derived from semi-structured interviews, analysis of pre- and post-test results, and alignment of RTI practice with district guidelines. Artifacts, such as classroom displays, bulletin boards, and forms were also reviewed as part of the data analysis process. Each theme will be addressed in Chapter Five. The three themes are: consistent alignment of RTI implementation practice and district guidelines; the challenge to implement RTI within constraints of daily schedule; and, nature of differentiated interventions by Tier.

Chapter 5:

Summary, Discussion, and Implications

Response to Intervention (RTI) is an initiative that provides early detection, prevention, and support systems to identify struggling students and assist them to be successful in school. RTI is based on the notion of determining whether an adequate or inadequate change in academic or behavioral performance has been achieved because of an intervention (Gresham, 2002). RTI came about initially in response to the over-identification of struggling students as special education students. RTI gained prominence amidst the reauthorization of IDEA (2004), which recognized the need to improve early intervention and identification for struggling students, some of whom may need special services (Wedl, 2005). RTI is not a mandate of IDEA; however, its model was recommended as the basis to improve how schools provide early intervention and identification. IDEA addresses legal requirements for accommodating individuals with disabilities in an educational setting, both in a regular classroom setting and where necessary a specialized setting. RTI was initially conceptualized as a means to determine special education eligibility; however, RTI was later broadened to include the process to determine educational strategies for the prevention of academic difficulties (Fuchs, Fuchs, & Stecker, 2010).

The purpose of this study was to evaluate the implementation process of the Response to Intervention (RTI) system on a group of third grade students in an elementary school during their study of one mathematics topic. The study evaluated how the RTI practices of the responsible parties, (i.e., the teacher, district instructional facilitator, and campus interventionist) are congruent with the district's RTI system. The

research project included a quantitative research component, which made use of a pre- and post-test that is included among the district's adopted mathematics curriculum materials. The study's qualitative research component included a semi-structured interview with each the teacher, campus interventionist, and district instructional facilitator about their preparedness, attitudes, perceptions, and practices regarding the RTI system and implementation process.

In order to best evaluate the process of implementation of the RTI system on a group of grade three students for a Mathematics unit topic at one elementary campus, the research project was guided by the following research questions:

- Do campus professional practices align with district guidelines?
- Do the instructional strategies used at each Tier follow the district guidelines?
- How do the intervention strategies used at each Tier impact student achievement on a pre- and post-test of an individual mathematics topic?

It was never the intention of this study to create a new theory regarding a RTI system and its application. At best, it is hoped this study will add knowledge to the literature regarding the congruence of a classroom and the district's RTI practices. RTI remains somewhat of a new initiative for many districts, and the literature to address particulars of how RTI is being implemented, such as the contributing factors considered to determine if a student may require Tier 2 or Tier 3, is limited.

The remainder of this chapter will be devoted to presenting themes that emerged through the analysis of data gathered during the study, implication of the findings on practice and future research, limitations of the findings, and possible future directions for similar research.

Discussion

There were three themes that emerged most prominently, as the result of the study. The three themes were: consistent alignment of RTI implementation practice and district guidelines; the challenge to implement RTI within constraints of the daily schedule; and, the nature of differentiated interventions by Tier. Each theme will be presented in relation to the research question where the theme is situated.

Research Question 1: Do campus professional practices for the assignment to RTI tiers of students in a selected third grade math class align with district guidelines?

Theme 1: consistent alignment of RTI implementation practice and district guidelines.

During each of the semi-structured interviews the participants confidently expressed themselves. They did not hesitate when asked about how they utilized or implemented RTI. There was a certain ease and confidence throughout the interviews. Whether discussing how students were assigned to a Tier, their progress monitoring routine, or RTI meetings, the participants appeared to be honest with their responses and offered very logical information and perspective. It was very interesting, then, that when asked about their knowledge or use of district guidelines, they did not speak with the same confidence or ease; each stated that they were aware of the district guidelines, but they weren't necessarily intimately familiar with them. The teacher stated, "It's not a document I reference on a daily basis, we've not been trained on how to use it; however, if I have questions, I first discuss with the team and then move on to district facilitator." The district facilitator stated, "I don't know the document verbatim, but if the document were available to me, I could comfortably walk someone through it." The campus

interventionist stated, "The first district I worked, I went through training, but since then I have not gone to any. I have someone over me, and she keeps track of that and lets me know what I need to know." Throughout each interview, despite these comments by the participants about the district guidelines they nonetheless appeared comfortable and confident when discussing how RTI is implemented at the school; their comments resonated with the literature and the key components for an effective RTI system as listed below. For example, the curriculum is based on a research based textbook series, *Envision Math*, they practice ongoing student assessment through the use of AIMSweb, the SST work is specific to tiered instruction, and parents are invited to SST meetings. This was also true from my observations and review of district artifacts, such as the forms that were utilized by the RTI team and student files showing the results of the meetings with parents and subsequent interventions with students.

Within the literature there is slight variation on what are considered the key components of RTI; however, in one form or another, each of the nine characteristics named in the 2004 Learning Disabled Roundtable report can be found in current RTI models, and most often synthesized from nine into three or four. For example, the RTI Action Network (n.d.) lists (1) high-quality, scientifically based classroom instruction, (2) ongoing student assessment, (3) tiered instruction, and (4) parent involvement as essential components. Wedl (2005) lists (1) identification, (2) eligibility, and (3) intervention as the essential components of RTI. The National Research Center on Learning Disabilities (NRCLD) (2007) identified (1) high-quality classroom instruction, (2) universal screening, (3) continuous progress monitoring, (4) research-based interventions, and (5) fidelity to instructional interventions as core components of RTI.

The NCRTI has articulated four essential components of RTI, and this review will elaborate on these components. According to the NCRTI, the four essential components of RTI are:

- A school-wide, multi-level instructional and behavioral system for preventing school failure
- Screening
- Progress Monitoring
- Data-based decision making for instruction, movement within the multi-level system, and disability identification (in accordance with state law) (NCRTI, p. 1).

Despite the limited knowledge of, awareness of, and confidence about district guidelines, RTI implementation is aligned with district guidelines. There appeared no discrepancies when practice was compared to district guidelines. For example, the forms used by the SST were copies of the forms included in the district guidelines, which also included a flowchart of process to follow for RTI implementation.

Research Question 2: Are the instructional strategies utilized in the selected third grade math class at each Tier aligned with the district's RTI guidelines?

Theme 2: The nature of differentiated interventions by Tier.

A curious phenomenon, for which I found no guide, direction, or specificity related to the interventions utilized by the teacher, campus interventionist, or district facilitator. During each of the interviews, I asked about differentiated interventions, those interventions that were specific to Tier 2 or 3. There was resonance in responses that they were different from those used with Tier 1, whole group instruction, but they

were not able to offer specific rationale for choice of interventions. The choice of interventions came from available resources. For example, the campus interventionist stated, "I know that everything the school has lines up with standards. I use Do the Math, as well as what I have from my previous work." The district, as enumerated in the district guidelines, provides access to four digital math resources: FASTmath, Envision Math Intervention Tools, Do the Math, and iReady. The digital math resources, as described in district guidelines, as for use only as Tier 2 or 3 interventions. The interviewees acknowledged use of these resources and their use, but how it was decided which of these or other interventions would be utilized was a result of the SST team's discussion. More than anything, there appeared to be collective wisdom that guided SST decisions. There was no doubt, as evidenced by participant comments, that what was in place was not working, and students in question needed alternative, strategic interventions, which was consistent with the literature.

According to the literature, students not making adequate progress in the regular classroom in Tier 1 are provided with increasingly intensive instruction matched to their needs on the basis of levels of performance and rates of progress. Intensity varies across group size, frequency and duration of intervention, and level of training of the professionals providing instruction or intervention. These services and interventions are provided in small-group settings in addition to instruction in the general curriculum (RTI Network, n.d.).

> When a student is identified via screening as requiring additional intervention, evidence-based interventions of moderate intensity are provided. These interventions, which are in addition to the core primary instruction, typically

> involve small group instruction to address specific identified problems. These evidenced-based interventions are well defined in terms of duration, frequency, and length of sessions, and the intervention is conducted as it was in the research studies. Students who respond adequately to secondary prevention return to primary prevention (the core curriculum) with ongoing progress monitoring. Students who show minimal response to secondary prevention move to tertiary prevention, where more intensive and individualized supports are provided. (NCRTI, p. 6).

The interventions chosen, and the demonstration of students' academic success in math, acted as validation that whatever interventions were chosen were appropriate. The district facilitator summarized it best, stating, "Last year, 2014-2015, was first year that the district and state implemented common core as basis of assessment. There were some technical difficulties with the online assessment; however, data for grades three through five demonstrated that these students maintained or increased their level of proficiency—they didn't lose ground despite change in assessment."

Theme 3: The challenge to implement RTI intervention strategies.

When asked about the challenges to implement RTI, the one area of challenge noted was related to providing necessary interventions during the course of the regular school day. According to the district guidelines, Tier 2 and 3 students receive the general education classroom block of math instruction plus recommended selected intervention time and days determined by standard treatment protocol and student needs. The frequency and duration of Tier 2 or 3 interventions are decided by the SST team on a case-by-case basis. The team's decision will alter an individual students' daily schedule,

which presumes that another subject or class will be affected, and while well-intentioned to benefit the students, the decision is not always well-received by the students. The campus interventionist stated her challenge related to scheduling when students would be sent to meet with her. She stated,

> They changed the time students come to me. Before, they used to come from specials and sometimes the students, based on the activity they are doing in specials, they do not want to meet with me. I know how important it is to have a well-rounded student and want to support specials. I try and work around that.

According to the district facilitator, there are at least three challenges to implementing RTI. First, there is the daily schedule and structure of the typical school day and the challenge presented by a full school day, how to fit the required additional time for RTI into an already full school day. This is followed by a traditionally structured curriculum, which makes it difficult stop as necessary, to provide required reinforcement or assessment of individual students' needs. Lastly, the teachers' capacities to effectively implement RTI. The teachers may be most committed; however, without adequate training, they will not be able to fully implement RTI in the classroom through differentiated instruction. Another challenge is the time in a given day to send students to the interventionist, since Tier 2 students go to interventionist at a time other than their math class. With RTI you need to have enough flexibility to stop what they are doing and get what they need, and move seamlessly between the regular classroom that's on grade level and the interventions. There is adequate evidence that the system is prepared to provide that. Part of this is how public schools function. The fact that

students have 6.5 hours of instruction compared to other systems around the world where students have 7-8 hours of instruction.

The literature addresses this challenge of when and how to implement the necessary additional time for RTI. Some educators view increased intensity as "something that can be accomplished by increasing instructional time and/or reducing the size of the instructional group" (Torgesen, 2005, p. 34-39). According to the National Research Center on Learning Disabilities, "Interventions should not go beyond eight weeks, because that amount of time should be ample to determine the student's response to intervention" (Bradley, Danielson, & Doolittle, 2007, p. 9). Fisher and Frey (2011), conducted a case study of a high school that was in its second year of RTI implementation, and within their conclusion stated, "In reflecting on the successes and challenges of implementing RTI as a system reform at the high school level, we identified several factors that served to facilitate the success" (p. 112), which included the scheduling of intervention efforts to supplement, but not supplant, core instruction needs to be included during core instruction time, not separate from. The challenge to honor a holistic educational approach for all students, and provide the additional instructional time for students assigned to Tier 2 or 3 is a challenge discovered in this study.

Research Question 3: How do the intervention strategies used at each Tier impact student achievement in one teacher's classroom on a pre- and post-test of an individual mathematics topic?

The pre- and post-test results can serve to assist the teacher in identifying trends in student performance. The teacher can compare these results to prior topic test results to identify anomalies or steady growth in student performance; additionally, the results

provide the teacher with topics that may require re-teaching. The data when appropriate disaggregated can provide focus and direction for the teacher's efforts; however, the small sample size of the Tier 2 students and overall data generated by the test results do not provide adequate perspective to identify that particular strategies impact student achievement.

Implications for Practice

The findings from this study may suggest the following for school and district administrators to consider as they implement RTI. First, what initial and ongoing training and support is provided for instructional practitioners who are responsible to implement RTI. Is it adequate for institutional memory held by a variety of individuals to suffice as a guide for RTI implementation? Implementing RTI with fidelity requires a system that ensures there is alignment between what SST or RTI teams practice and what are expectations of the district or other governing agency. This Comparative List of Factors for Successful RTI Implementation, which was presented in Chapter 2, identifies professional development as a priority for successful RTI implementation. My study suggests that sustained professional development is essential to ensure faithful and robust RTI implementation. It is not sufficient that teachers and others responsible to implement RTI are provided initial training with no purposeful subsequent or sustained professional development. While institutional and shared wisdom contributes importantly to implementation, there must exist, as it does for students, benchmarks and formative evaluations to ensure timely and thorough RTI implementation.

The traditional bell-to-bell schedule has provided the basis for identifying where and when RTI interventions will be offered. There is a need to be creative with the daily schedule, to discover alternative ways to offer RTI interventions without compromising educational opportunities meant for all students. Essentially, how does a school provide necessary Tier 2 or 3 interventions while having the Tier 2 and 3 students fully participate in all school curricular and co-curricular programs and services? The literature did not offer any suggestions, which fortifies my regard for identifying schools who have adopted effective implementation practices.

The specific interventions utilized in Tier 2 and 3 must necessarily be strategic to address students' particular academic deficits or weaknesses. The rubric to identify and choose specific interventions must necessarily be appropriate for the student and the situation. The mechanisms in place to ensure interventions are the most appropriate is fundamental to effective and RTI system.

Implications for Further Research

This study introduces an opportunity to further discover practices that may best fulfill RTI's purpose, and ensure that all students who need additional academic support receive such. There is a need to further research what the most effective instructional intervention strategies at Tier 2 and 3 in elementary math instruction. The research findings must necessarily be disseminated in ways that are easily and prominently available to practitioners.

Conclusion

This study was born out of a personal interest. As a math teacher and administrator charged with implementing RTI, I was compelled to investigate how such implementation occurred. It has been often suggested that once the school year begins, or after initial training on a new initiative, teachers and administrators work in silos. We know what we've learned and go back to our particular situation and do what we can to implement it. There is a challenge to remain aware of initial learning as well as latest developments regarding the initiative. Often, the unspoken question remains, is RTI being implemented most effectively? The opportunity to discover ways in which RTI is implemented in a particular context, and compare this practice to local district guidelines and the extant literature is a rare opportunity—this was at the heart of this study. To compare, to triangulate practice, local guidelines, and extant literature and discover where the three meet or diverge enlightening. One of my fundamental discoveries was the amount of collective wisdom that is represented by one teacher, interventionist, and district facilitator. The collective wisdom is pivotal to effective RTI implementation, since it represents a rich variety of experience and perspective. The voices of the SST (RTI) team members, demonstrated by their years in education, their background, and their roles contributed to this collective wisdom, which in its own way appears to be an appropriate method to evaluate the effective implementation of an RTI system in one school.

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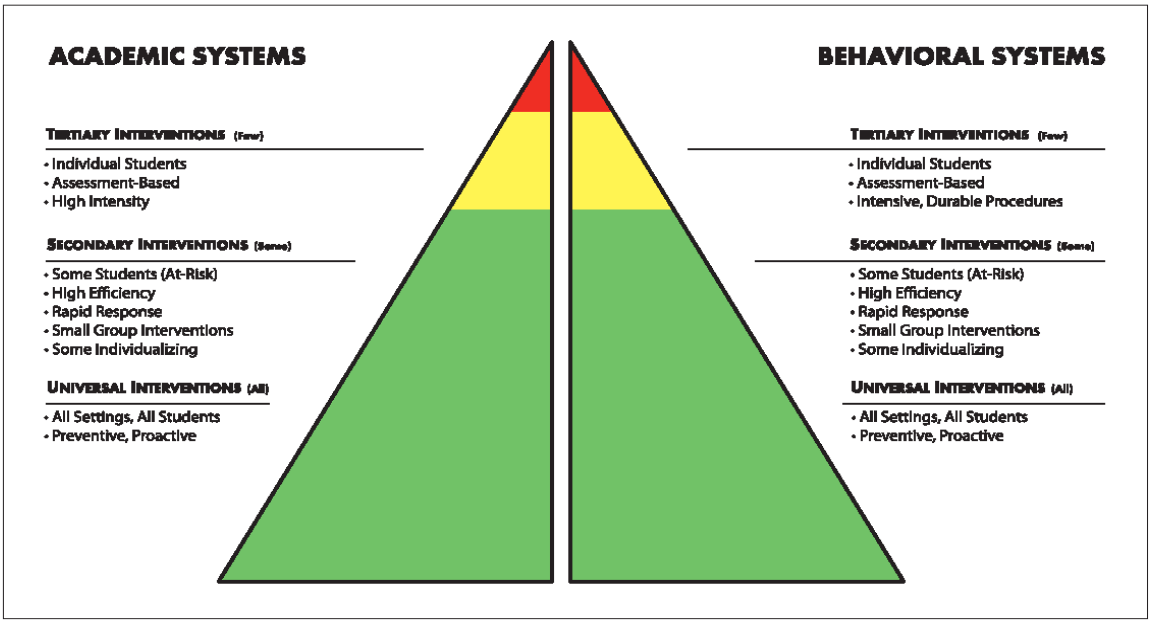
Appendix A

RTI Tiered Instruction Model

A three-tiered intervention model From the National Association of Directors of Special Education (NADSE) Batsche et al. 2005



Appendix B:

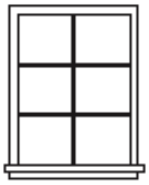
SAMPLE TEST -- Topic Nine Test (Pre- and Post-Test)

Name _____

Topic 9
Test

Mark the best answer.

1. What is the name of the equal parts of the whole window? (9-1)



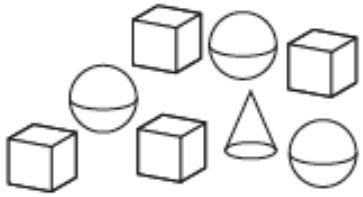
A Fifths
B Sixths
C Eighths
D Tenths

2. Shelby made a design with tiles. The design is divided into equal parts. What fraction represents each part of the whole? What fraction names the part of Shelby's design that used red tiles? (9-2)

red	blue	red
yellow	red	blue

A $\frac{1}{3}, \frac{3}{3}$
B $\frac{1}{4}, \frac{3}{4}$
C $\frac{1}{6}, \frac{3}{6}$
D $\frac{1}{8}, \frac{3}{8}$

3. Sanjaya has the blocks shown below. What fraction of the blocks are cones? (9-3)



A $\frac{7}{8}$
B $\frac{1}{6}$
C $\frac{1}{7}$
D $\frac{1}{8}$

4. Nancy sold $\frac{1}{4}$ of the hats she made. She started with 20 hats. How many hats did she sell? (9-4)

A 4
B 5
C 6
D 10

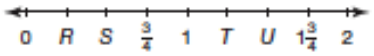
t page (→)

Name _____

5. Kyla is decorating a banner with colored squares. What fraction of the banner has she finished decorating? (9-7)

A $\frac{1}{8}$
B $\frac{3}{8}$
C $\frac{5}{8}$
D $\frac{8}{8}$

6. Zack lives $\frac{1}{4}$ mile from school. Which point best represents $\frac{1}{4}$? (9-5)



A Point *R*
B Point *S*
C Point *T*
D Point *U*

7. Mr. Schiffer planted 9 fruit trees in his orchard. Of the trees, $\frac{1}{3}$ are grapefruit trees. How many trees are grapefruit trees? (9-4)

_____

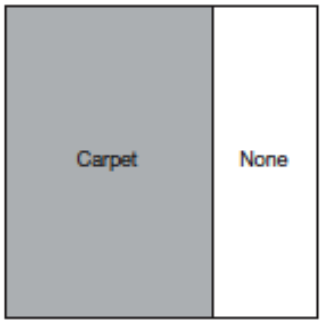
8. Alana buys bags of balloons. Each bag has 8 balloons. Out of the 8 balloons, 6 balloons are red. If Alana buys 32 balloons, how many are red? (9-8)

Red Balloons	6	12		
Total Balloons	8	16	24	32

_____

9. Draw a circle that shows 4 equal parts. Shade $\frac{3}{4}$ of the circle. (9-2)

10. Part of Yoshi's room is covered with a carpet. About what fraction of the room is carpet? (9-6)



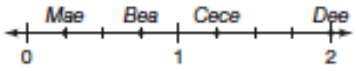
_____

Name _____

11. Fran and Naomi joined the swim team. For their first practice they each swam less than half a mile. What possible benchmark fractions could help describe how much of a mile they swam? (9-6)

_____

12. Four students guessed the length, in inches, of an eraser. The number line shows their guesses. Cece's guess was correct. What number did Cece guess? (9-5)



_____

13. What fraction of the counters are shaded? (9-3)

_____

14. Draw a picture of a rectangle that has been divided into 8 equal parts. (9-1)

_____

15. Raj decided to paint a table. He painted $\frac{2}{6}$ of its length green and $\frac{1}{6}$ blue. What fraction of the table did Raj not paint? (9-7)

_____

16. Johan wants to buy some toy plastic animals. Each package of toy animals has 30 animals, and 12 of them are mammals. How many mammals will he have if he buys 180 toy animals? (9-8)

Toy Mammals	12	■	■	■	■	■	■
Total Toy Animals	30	■	■	■	■	■	■

_____

Appendix C:

Participant Agreement to Letter

You are being invited to participate in a research project conducted by Leola Lawrence from the College of Education at the University of Missouri – St. Louis. This study will serve as the basis for a doctoral dissertation supervised by Dr. Helene Sherman.

NON-PARTICIPATION STATEMENT

Your participation is voluntary and you may refuse to participate or withdraw at any time without penalty or loss of benefits to which you are otherwise entitled. You may also refuse to answer any question.

PURPOSE OF THE STUDY

The purpose of this study is to evaluate the implementation process of the Response to Intervention (RTI) system on a group of third grade students in an elementary school during their study of one mathematics topic for 11 days.

PROCEDURES

You will be one of 3 professionals to be asked to participate in this project.
You will be asked to meet with the researcher, Leola Lawrence, for a one-hour interview to scheduled at a mutually agreed upon date and time.

CONFIDENTIALITY

Your participation in this project is anonymous. Please do not write your name on any of the research materials to be returned to the principal investigator.

RISKS/DISCOMFORTS

As your participation will be anonymous and confidential, no risks are foreseen based on your participation in this study.

BENEFITS

While you will not directly benefit from participation, your participation may help investigators better understand how the process to implement RTI at an elementary campus.

ALTERNATIVES

Participation in this project is voluntary and the only alternative to this project is non-participation.

PUBLICATION STATEMENT

The results of this study may be published in professional and/or scientific journals. It may also be used for educational purposes or for professional presentations. However, no individual subject will be identified.

If you have any questions, you may contact Ms Leola Lawrence at (XXX) XXX-XXXX. You may also contact Dr. Gayle Wilkinson, faculty sponsor, at (XXX) XXX-XXXX.

ANY QUESTIONS REGARDING YOUR RIGHTS AS A RESEARCH SUBJECT MAY BE

ADDRESSED TO THE UNIVERSITY OF MISSOURI-ST. LOUIS COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (XXX-XXX-XXXX).

By providing the information listed below, you indicate your voluntary consent to participate in this research study.

_____ _____

Name (Printed) Date

_____

Signature

Appendix D:

District Permission to Conduct Research

(Forthcoming after Successful Proposal Defense)

Appendix E:

Interview Guiding Questions

Interviews with (1) District instructional facilitator, (2) Teacher, and (3) Intervention specialist.

INTRODUCTION: I am interested to learn about your experience with implementing RTI at the school. I will like to ask you a few questions and request your open and honest response.

Guiding questions:

1. Tell me about your background – how long you've worked in education, your experience, how long you've worked with RTI, and anything else you'd like to say about your professional career.
2. On a scale of 1-10 (10 being highest) how confident to you feel about the RTI process and your role to implement it?
3. On a scale of 1-10, how well prepared do you feel you are to implement RTI?
4. On a scale of 1-10, how do you feel about the effectiveness of RTI?
5. On a scale of 1-10, how well do you understand the district's RTI guidelines?
6. What is your understanding of why RTI exists?
7. If you need assistance or have an RTI related question, who is first person you contact?
8. What do you believe to be one or two of the biggest challenges to implementing RTI? Have you experienced these at the school?
9. What are one or two factors that you believe are essential to successful RTI implementation? Have you experienced these at the school?
10. Walk me through the RTI process you use to assign students to a Tier.

Appendix F:

Classroom Observation Rubric

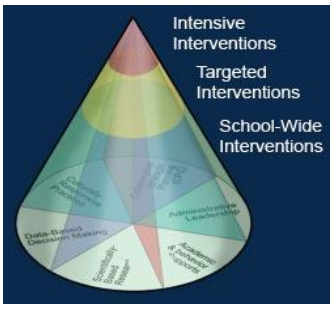
Introduction: The following rubric will guide the two classroom observations.

What is the evidence of differentiated instructional and learning strategies? (Supplemental materials, manipulatives, etc.) Is there any indication of students' assigned Tier? What? How?
How are students seated/grouped? Cooperative? Traditional rows? Mixed levels of mastery?
What is the evidence that student progress/mastery is being monitored? By whom?
Other items of note:

Aivppendix G:

District RTI Guidelines (excerpts)

Response to Intervention



Supporting our Students

Through a Response to Intervention Approach:

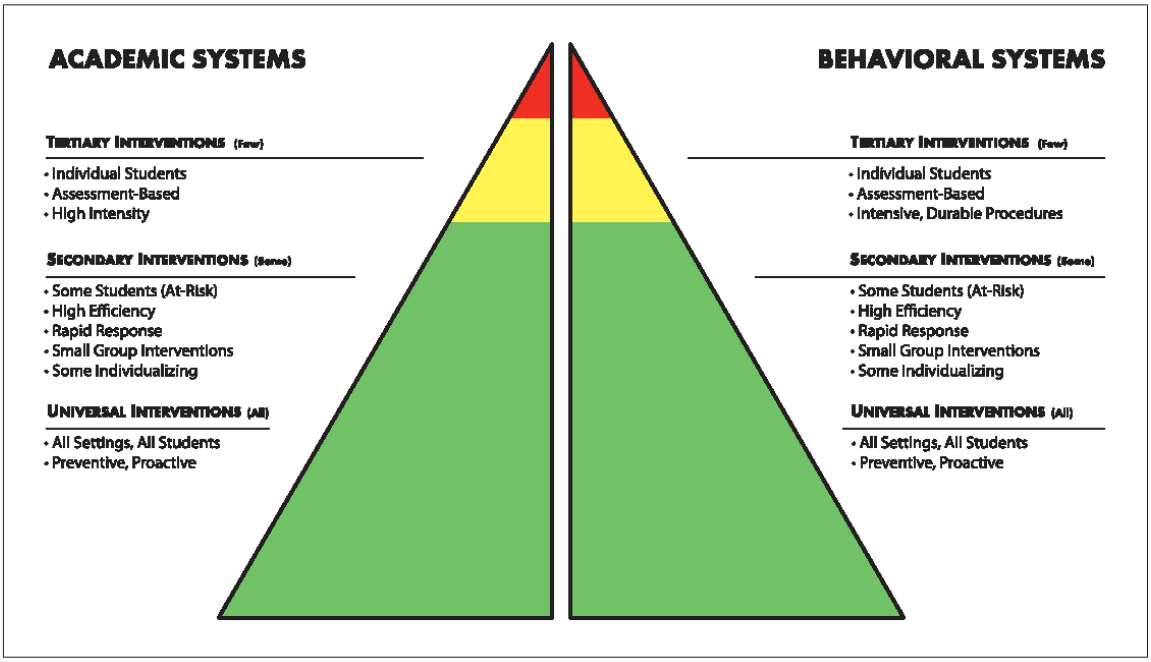
Prevention, Identification, Strategic Instruction/Intervention, Progress Monitoring, Decision-Making

District Leadership Team Members:

Response to Intervention:

Response to intervention integrates assessment and intervention within a multi-level prevention system to maximize student achievement and to reduce behavior problems. With RTI, schools identify students at risk for poor learning outcomes, monitor student progress, provide evidence-based interventions and adjust the intensity and nature of those interventions depending on a student's responsiveness, and identify students with learning disabilities or other disabilities.

(National Center on Response to Intervention)



Purpose of RTI in Ritenour:

- Belief in prevention rather than wait to fail approach
- Need for early intervention rather than later remediation
- Universal screening helps identify students in need of academic or behavioral assistance
- Tiers of assistance are available for *all* students
- Data indicate large percentage of students not at proficiency levels in math and reading
- Assists with determination of Specific Learning Disability eligibility

Response to Intervention: Key Components

Response to Intervention is a structure to enhance instructional effectiveness through the use of evidence-based practice, systematic data collection and data based decision making. The framework is a tiered model of providing intervention services to students that is systematic and data-driven. The level or intensity of the intervention is based upon the specific academic or behavioral needs of the student. Student progress is monitored during all points in the system in order to provide information on the response of the student to the intervention implemented.

- ***High quality, Scientifically Research Based Core Instruction:*** Core instruction should be researched based and meet the needs of a majority of students (approximately 80%) determined by using school wide screenings.
- ***School Wide Screening and Progress Monitoring:*** School wide screenings should be implemented to ensure the core instruction is meeting the needs of the majority of students. This is typically done three times a year. Strategic and progress monitoring are used for students in tier 2 and tier 3 and should be done on a monthly, bi-weekly or weekly basis to determine the effectiveness of the interventions. Best practice is to use a technically adequate instrument such as Curriculum Based Measurements (CBM). CBMs provide an easy and quick method for gathering student progress that is reliable and valid and allows for comparison to district and national data.

- ***Data-Based Decision Making***: Data-based decision making involves examining all data available when making decisions. It should involve defining the problem, developing an assessment plan, analyzing the assessment results and developing an intervention plan based on the results.

- ***Well-functioning Problem Solving Teams:*** A problem solving team should consist of both general and special education teacher, school psychologists, parents, administrators and any other specialist such as social workers or speech and language pathologists. The function of the team is to analyze data from the universal screening as well as the progress monitoring data using a systematic set of activities to guide each meeting.

- ***Tiered Model of Interventions:*** Intensity of interventions and frequency of progress monitoring increases as students move up in tiers. Movement across tiers should be fluid and change based on results of progress monitoring and decisions made by problem solving teams.

- ***Evidence Based Interventions:*** A program that is evidence based has gone through rigorous research and has demonstrated a record of success; there is reliable, trustworthy and valid evidence to suggest the program is effective; evidence supporting the practice should be scientifically based.

- ***Fidelity of Implementation:*** All interventions and core instruction should be implemented with integrity. To ensure fidelity of implementation checks should be in place such as observations or checklists.

Universal Screening for Literacy and Mathematics

The primary purpose of universal screening in the Ritenour School District is to determine which students need additional resources or help to be successful academically and/or behaviorally. Additionally, the screen is used to establish normative data for the school district. The process uses short, easy-to-administer probes to measure specific skills a student has achieved.

Screening Tool(s):

- **AIMSweb**, a progress monitoring system based on direct, frequent and continuous student assessment is used as the district universal screening tool. AIMSweb assessments meet professional standards for reliability, validity, and sensitivity to improvement. They are research-based, curriculum independent and ensure that student achievement is assessed equitably regardless of curriculum differences among teachers and schools, and/or changes in curriculum over time.
- **Developmental Reading Assessment (DRA)** is a series of leveled books and recording sheets designed to allow teachers to determine students' reading accuracy, fluency, and comprehension levels. DRA data are collected at the beginning of the school year to determine student progress and placement. Students are determined to be near, at, or above grade level, below grade level, or significantly below grade level based on their performance on the assessment relative to their grade level status.

Students Screened:

- Students in grades K-8 are screened three times per year using AIMSweb. Screening takes place during the fall, winter and spring following the AIMSweb testing window.
- Students in grades 1-5 are given the Developmental Reading Assessment (DRA) in the fall each school year. Students scoring in the lowest 10% in the CBM/MAZE and reading benchmarking after the winter and spring benchmarking periods are given the DRA .
- Students receiving English Language Learner services will be screened using the English version of AIMSweb. Students receiving ELL services whose first language is Spanish who score below the national norm for Tier 1 will be given the Spanish version of AIMSweb for further data.

Screening Process:

- A trained district and building level team including instructional facilitators, interventionists, school psychologists, school counselors, building administrators and/or teachers will screen students individually on building designated screening days.
- The classroom teacher, with substitute teachers available to provide classroom support and facilitate instruction during the assessment, administers the DRA to individual students.
- Students enrolling after universal screening has taken place will be screened by a building counselor using the monthly benchmarking measure.
- Elementary and middle schools need approximately six-ten people per buildings to screen when using browser based assessments.

- Each assessor should have access to a computer, student assessments, assessment schedule and class lists.
  Building administrators will serve as the test coordinator before and during the assessment.

- Classroom teachers will be placed with a partner and will give whole class assessments to partner's students at teacher determined times on scheduled AIMSweb dates.
- Scoring and entering of data of paper administered assessments will occur with grade level teams during weekly PLC meeting. RTI team member may be present to assist with scoring and problem solving.

Appendix H:

Tier 2 Roles

Tier 2 for the Administrator

Role	Instructional support and guidance Review data and documentation to make sure student is eligible to move to Tier 2
Monitoring	Review baseline data for students relative to data point for the child relative to the class performance Support interventions and monitor to see if they are being implemented with fidelity
Supporting	Provide scheduling that allow resources to be available for teachers and interventionists Assist with documentation if necessary to move to Tier 3

Tier 2 for the Teacher

Role	Implement curriculum frameworks of district and state Can be interventionist
Monitoring	Could assist with and/or implement strategic monitoring
Supporting	Collaborate with the interventionist

Tier 2 for the Interventionist

Interventionist	classroom teachers, reading specialists, special education teachers and specialists, special area teachers (art, music, physical education, etc.), building administrators, counselors, social workers, outside agencies
Role	• Work in small group or individually with students requiring intervention(s) plan and implement lessons utilizing the research-based intervention as determined by the standard treatment protocol • strategic or progress monitor using measure aligned to area of instruction • share data with team • collaborate with team to determine next steps depending on evidence of growth
Monitoring	Implement strategic monitoring
Supporting	Collaborate with classroom teacher Provide documentation

Appendix I:

PLC-Student Support Team Information Gathering Packet

Ritenour School District
Educational Excellence Since 1867

PLC-Student Support Team Information Gathering Packet

Name: _____ Grade: _____

Teacher: _____ Date of Meeting: ___/___/_____

School: _____ Date of Parent Contact: ___/___/_____

Retentions: ❑ No ❑ Yes Grade_____ IEP: ❑ No ❑ Yes DX:_____

Person Initiating Process: ❑ Teacher ❑ Principal ❑ Parent ❑ Agency ❑ Other: _____

Area(s)of Concern: ❑ Academic ❑ Behavior ❑ Medical ❑ Speech/Language ❑ Other: _____

Record Review

Attendance
- YTD Absences: ___/___
- Previous Year: ___/___
- List all schools attended:

Special Services
- ❑ IEP
- ❑ 504 Plan
- ❑ Behavior Support Plan
- ❑ Outside Agency Support
- ❑ Medical/Health Needs
- ❑ ELL
- ❑ Project Challenge
- ❑ Other_____

Screening Information (Nurse)
- Hearing
  Date:_____
  Results:_____
  Recheck Needed:_____
- Vision
  Date:_____
  Results:_____
  Recheck Needed:_____

Other Factors
- ❑ Environmental Concerns
- ❑ Other languages spoken at home
- ❑ Temporary, sudden or recent trauma
- ❑ Limited Experiences
- ❑ School readiness skills
- ❑ Transiency
- ❑ Other: Please explain

Teacher Observations

Classroom Participation	Concern	Average	Strength
Discussion Participation			
Group work			
Concentration and Ability to Attend			
Follows Directions			
Completes Assignments			
Social/Emotional	**Concern**	**Average**	**Strength**
Has friends			
Relates to Adults			
Displays appropriate feelings and emotions to situation			
Appropriate self-help skills			
Communication	**Concern**	**Average**	**Strength**
Asks for Help Appropriately			
Socially appropriate language			
Spoken Language			
Written Language			
Speech (Articulation)			
Receptive Language			

Relevant Data Sources to Review and Bring to Meeting:

Literacy	Math	Behavior	Pre-Academics	Other
❑ Aimsweb ❑ Discovery ❑ DRA rubric ❑ State Assessments ❑ Terra Nova ❑ Local Assessments ❑ Classroom Work ❑ Samples ❑ Other:	❑ Aimsweb ❑ Discovery ❑ State Assessments ❑ Terra Nova ❑ Local Assessments ❑ Classroom Work ❑ Samples ❑ Unit Tests ❑ Other:	❑ Discipline Reports ❑ Attendance ❑ Check In/Out ❑ Mentoring ❑ Hearing ❑ Outside Agency reports ❑ Time-Outs ❑ SSRI ❑ Self Assessments and Screenings ❑ Other:	❑ Dial-3 ❑ Early Literacy and Numeracy	❑ _____

Comments:

Parent Contact Date:_____ ❑ Letter ❑ Phone ❑ Email

Student Support Team Problem Solving Plan
PLC/Grade Level Meeting #1

Specific Area(s) of Concern:

Intervention:	Resources Required:	Time Required:
Date to Begin and Frequency of Intervention:	**Method to Determine Effectiveness:**	**Person Responsible for Implementation:**

Follow-Up Meeting Date: _____ Time:_____

Intervention Fidelity Checklist

Student Name: _____

Directions: Place an 'X' under each day intervention is completed. Please make a note of any absences.

Week of: _____	Monday	Tuesday	Wednesday	Thursday	Friday

Week of: _____	Monday	Tuesday	Wednesday	Thursday	Friday

Week of: _____	Monday	Tuesday	Wednesday	Thursday	Friday

Week of: _____	Monday	Tuesday	Wednesday	Thursday	Friday

Week of: _____	Monday	Tuesday	Wednesday	Thursday	Friday

Week of: _____	Monday	Tuesday	Wednesday	Thursday	Friday

Week of: _____	Monday	Tuesday	Wednesday	Thursday	Friday

Week of: _____	Monday	Tuesday	Wednesday	Thursday	Friday

Comments:

Student Support Team Problem Solving Plan
PLC/Grade Level Meeting #2

Outcomes of intervention (✓ one box)

☐ Minimal Progress Made	☐ Some Progress Made	☐ Progress Made
1. Complete Information Below 2. Change Intervention 3. Begin New Fidelity Checklist	1. Modify Intervention Frequency 2. Determine New Goal 3. Complete Fidelity Checklist	1. Continue Intervention 2. Determine New Goal 3. Complete Fidelity Checklist

Evidence to Support Need for New Intervention: *(See Progress Monitoring Source Sheet for Examples)*

Specific Area(s) of Concern:

Intervention:	Resources Required:	Time Required:
Date to Begin and Frequency of Intervention:	**Method to Determine Effectiveness:**	**Person Responsible for Implementation:**

Follow-Up Meeting Date: _____ **Time:** _____