Response to Intervention: Raising the Achievement of Struggling Readers

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RESPONSE TO INTERVENTION: RAISING THE ACHIEVEMENT OF
STRUGGLING READERS

A Dissertation
Presented to
The Morgridge College of Education
University of Denver

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

by
Sarah E. Littmann
March, 2010
Advisor: Dr. Nick Cutforth
Two purposes guided this concurrent nested mixed methods research. It examined and described the processes followed and experiences had by the administrators, teachers, and specialists involved in designing and implementing a new Response to Intervention (RtI) model at an elementary and examined the effectiveness of the RtI model on raising achievement scores in reading after its first year of implementation.

Qualitative findings revealed two challenges encountered by district level personnel. First, administrators felt pressured to put RtI into effect quickly due to the needs of students in the district and new educational policies mandating immediate changes to long-standing practices. Second, logistical obstacles to implementation arose, including scheduling and credits earned towards graduation of secondary students. While the new RtI model presented difficult challenges, district level administrators felt successful having met the district goals for the year and perceived growth on standardized tests.

This dissertation described the design and implementation of the RtI at Foothill Elementary School. Foothill went above and beyond the goals set by the district by designing and implementing a Standard Treatment Protocol to complement services provided by the Problem Solving Team at the school.
Participants faced two major challenges during the first year of RtI implementation: structural aspects of the RtI model impeded effective communication and the rigid school schedule presented logistical challenges impeding student services provided. However, participants agreed the model was successful, met the needs of students, and credited its success to the strength of the school staff and leadership.

Quantitative analyses examined the growth rates of students receiving intervention versus students in comparison groups. Four regression discontinuity analyses were conducted: (1) growth of first grade students on the Phonological Awareness Literacy Screening (PALS); (2) growth of second and third grade students on the PALS assessments; (3) growth of third through sixth grade students on the Measure of Academic Progress (MAP); and (4) growth of fourth through sixth grade students on the Colorado Student Assessment Program (CSAP).

Results revealed the presence of a statistically significant treatment effect in favor of students in the intervention groups on the spring 2009 Colorado Student Assessment Program only.
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Chapter 1: Introduction

Meet Jessica and Michael

Jessica.

Jessica is a second grader with a great sense of humor and an ever-present guilty looking grin on her face. She loves to share stories about what she did over the weekends with her friends and family; she spends hours talking about and discussing her experiences. Jessica is a second language learner and speaks both Spanish and English at home. Her mother is very involved with Jessica’s education and spends time each night discussing with Jessica what she did and learned during the day. Her mother reads to her at night before bed as Jessica listens attentively.

Jessica works hard in the classroom, though she does play with and talk to those around her, perhaps at what her teacher considers inappropriate times. Because Jessica is a second language learner, her teachers modify lessons and shelter instruction to make the content more comprehensible for her. She also receives supplemental English as a Second Language (ESL) services that improve her fluency in English, but have not yet made a substantial impact on her reading or writing; at the start of second grade, Jessica was scoring at the first percentile on nationally normed assessments in reading and language use.
If you ask Jessica about the current topic of study in her classroom, she will enthusiastically tell you everything she has learned. Sometimes, her enthusiasm keeps her from sitting so she stands next to her chair, talking just as much with her hands as with her mouth as she professes her knowledge with great excitement. However, when you show Jessica a second grade leveled book (or even a first grade leveled book) and ask her to read about the same topic she just exuberantly explained, she will spend a few moments unsuccessfully attempting to sound out the words while desperately looking up for assistance every few seconds. After a few moments, she will sit back down; her enthusiasm nearly gone, her sneaky grin no longer apparent as a frown takes its place, her eyes focused on her shoes.

Michael

Michael is also a second language learner, speaking only Spanish at home with his mother, father, and younger sister; he speaks English in the classroom with his teacher and classmates and both Spanish and English with his friends on the playground. He is noticeably behind his peers in reading, writing, and language acquisition and receives supplemental English as a Second Language instruction outside of the classroom. At the beginning of second grade, Michael cannot read and still struggles to recognize certain letters; he still does not know the majority of the sounds made by the letters in the alphabet.

Michael is shy around new people but always has a smile on his face. Watching Michael read, or attempt to read, he will look more at the teacher for
assistance with sounding out letters and words than will look at the book. He is insecure about his academic abilities and openly admits that he is “not really good at school.” His feelings seem to have been confirmed by beginning of the year assessments that placed Michael at the first percentile nationally in reading and language usage.

Jessica and Michael struggle every day. While both children are only in second grade, if they progress at their current rate, they will fall further and further behind their classmates and will likely never become proficient readers. These missing skills will continue to haunt these children throughout the remainder of their education. As content and materials become more and more difficult, Jessica and Michael will probably experience more and more academic failure and discouragement.

Surprisingly, however, neither of these students qualifies for special education services. While their teachers work exceptionally hard to meet these students’ needs, the plain and simple truth of the matter is that they aren’t. This is not a reflection of the ability or efforts of their teachers, but reflects current policies and practices in public education.

**Policies, Practices, and Their Impact on Students**

Students like Jessica and Michael have not previously qualified for special education or intervention services as a result of a long history of educational policies and legislation. Policies such as the Equal Education Opportunities Act of 1974 and the Education for All Handicapped Children Act (EAHCA) of 1975
(Holdnakc & Weiss, 2006) led to the design and application of procedures for identifying students with learning disabilities. Despite the fact that Jessica and Michael struggle continuously, they do not qualify for special education services under these regulations.

The EAHCA of 1975 was one of the first regulations specifying the manners in which students with learning disabilities were identified in the schools (Martinez, Nellis, & Predergast, 2006). This act defined a learning disability as the presence of a severe and otherwise inexplicable discrepancy between a student’s ability to perform and his actual performance in school (Martinez et al., 2006); in other words, a student was labeled as having a learning disability if he did not perform academically at a level consistent with his intelligence quotient (IQ) (e.g. Gresham, 2001; Hollenbeck, 2007; Mellard, Deshler, & Barth, 2004; Reschly & Hosp, 2004). To determine whether or not a severe discrepancy existed, schools compared results of IQ tests to results of other standardized assessments; this allowed educators to determine whether or not the student’s performance in school, measured by the standardized assessment, was in line with the student’s intelligence and therefore academic ability, measured by the IQ test (Feifer, 2008). This was referred to as an “IQ-discrepancy model” (Appelbaum, 2009).

Legislation requiring the use of the IQ-achievement discrepancy model has had a number of enduring impacts on struggling students enrolled in public schools. While the legislation did positively impact students with learning
disabilities by raising awareness of and attention to their needs, a number of criticisms of this model have surfaced (e.g. Feifer, 2008; Fuchs, Mock, Morgan, & Young, 2003; Fuchs, Fuchs, & Compton, 2004; Gardland, & Strosnider, 2005; Gersten & Dimino, 2006; Hale, Kaufman, Naglieri, & Kavale, 2006; Holdnack & Weiss, 2006; Vellutino, Scanlon, Small, & Fanuele, 2006). Major criticisms of the IQ-achievement discrepancy model include: the lack of consistency in regulations and policies specifically defining a “severe discrepancy”; inconsistencies in the processes used by educators to identify a severe discrepancy from school to school, district to district, and state to state; the “wait to fail” nature of the model; the unreliable and unstable nature of the results; the over-representation of minorities and students from disadvantaged backgrounds in special education as a result of the model; the presence of numerous uncontrolled extraneous variables that potentially impact the results of standardized assessments; the heavy weight placed upon a single measure of intelligence and achievement; and, most importantly for this dissertation, the exclusion of certain individuals, such as Jessica and Michael, from receiving additional services who fail to meet IQ-discrepancy model guidelines (Appelbaum, 2009; Feifer, 2008; Fuchs, Mock, Morgan, & Young, 2003; Fuchs, Fuchs, & Compton, 2004; Gardland, & Strosnider, 2005; Gersten & Dimino, 2006; Hale, Kaufman, Naglieri, & Kavale, 2006; Holdnack & Weiss, 2006; Vellutino, Scanlon, Small, & Fanuele, 2006).
More recent policies have been enacted for the purpose of better serving struggling students and have instituted more effective manners for identifying students with learning disabilities such as the No Child Left Behind (NCLB) act of 2001 (Shaul & Ganson, 2005) and the Individuals with Disabilities in Education Act (IDEA) of 2004 (Holdnack & Weiss, 2006). These two acts have significantly impacted the manners in which all students are served by schools, first by placing greater emphasis on the importance of early intervention to prevent academic failure and second by redefining the processes used in identifying students with learning disabilities (Appelbaum, 2009; Feifer, 2008; Fuchs & Fuchs, 2006; Hale; 2006; Holdnack & Weiss, 2006; Hollenbeck, 2007). These changes have come as a result of the multitude of criticisms of the IQ-discrepancy model as well as the growing body of research revealing that academic failure and placement into special education services can oftentimes be avoided through early intervention, especially in reading (Berninger, Abbott, Vermeulen, Ogier, Brooksher, Zook, & Lemos, 2002; Fuchs & Fuchs, 2006; Gersten et al., 2008; Juel, 1988; Mathes, Denton, Fletcher, Anthony, Francis, and Schatschneider, 2005; Morris, Bloodgood, & Perney, 2003; Pedrotty Bryant, Bryant, Gersten, Scammacca, & Chavez, 2008; Santa & Hoien, 1999; Torgesen, Alexander, Wagner, Rascotte, Voeller, Conway et al., 2001; Torgesen, Wagner, Rashotte, Lindamood, Conway, et al., 1999; Vellutino, Scanlong, Small & Fanuele, 2006; Vellutino, Scanlon, Sipay, Small, Pratt, Chen, et al., 1996; Vellutino, Scanlon, Small, Fanuele, 2006; Wright, 2007).
IDEA states that “in determining whether a child has a specific learning disability, a local educational agency may use a process that determines if the child responds to scientific, research-based interventions as a part of the evaluation procedures” (IDEA; 2004 as cited in Hollenbeck, 2007, p. 137). In practice, IDEA compels schools to provide early intervention to all struggling students in order to more clearly determine whether a student’s academic failure is a result of a learning disability or lack of adequate previous instruction. In essence, the discrepancy model has “been dealt a final blow” as IDEA proclaims “states may not require a school district to use the discrepancy model to identify students as learning disabled” (McCook, 2006). The leading alternative to the IQ-discrepancy model that has come as a result of IDEA is the Response to Intervention (RtI) model.

**Response to Intervention (RtI)**

Response to Intervention is a multi-tiered model of instruction and intervention “for providing early intervention [that] efficiently and flexibly delivers educational assistance to at-risk learners to close skill or performance gaps with peers” (Wright, 2007, p.2). RtI relies upon the use of formative assessment data that are used to evaluate general education effectiveness, student need, and student progress, as well as to aid in determining special education classification (Fuchs, 2003, Fuchs & Fuchs, 2006; Fuchs, Fuchs, & Speece, 2002; Fuchs, Mock, Morgan, & Young, 2003; Gersten & Dimino, 2006; Gersten et al., 2008; Jenkins, Hudson, & Johnson, 2007; Justice, 2006; Marston, 2005; Sawyer,
As opposed to the IQ-discrepancy model in which students oftentimes failed academically for extended periods of time prior to receiving support, RtI is preventive in nature, adhering to best practices recommended by the National Reading Panel (NRP, 2000) suggesting that early intervention for struggling readers be put into practice for the purpose of addressing problems prior to academic failure (Justice, 2006; Martinez et al., 2006).

According to Jim Wright (2007), a leader in the field of RtI design and implementation, RtI requires that schools organize their intervention resources into levels of increasing intensity. Students who are identified as being at-risk for school failure receive individualized academic support, have ambitious goals set for improving their performance, and are closely monitored to ensure that they achieve those goals (p. 3).

Within a typical RtI model, instruction and intervention is organized into three tiers: Tier 1 instruction and interventions are universally delivered to all students; Tier 2 interventions, or targeted interventions, are tailored to meet the needs of struggling students, either individually or in small groups, for whom Tier 1 instruction is not adequate; Tier 3 interventions, or intensive interventions, are provided for students, often on a one-on-one basis, who continue to fail academically after receiving Tier 1 and 2 instruction and intervention (e.g., Appelbaum, 2009; Fuchs & Fuchs, 2006; Hollenbeck, 2007; Kemp & Eaton, 2008; McCook, 2006; Wright, 2007).
Purpose of This Study

According to Maryln Appelbaum (2009), “RtI is going to completely restructure American education in ways that we have never seen before” (p. xix). The design and implementation of a Response to Intervention model requires that schools change the ways students are served by restructuring the manners in which instruction is provided and progress is monitored. Schools must establish a strong intervention team, create research-based intervention plans to ensure student learning, monitor student progress using appropriate and efficient measures, and adjust practices to meet student needs quickly and effectively (McCook, 2006; Wright, 2007). This reform movement applies to and impacts all staff at all levels of a school and district.

Because Response to Intervention is still in its early phases of development, research examining RtI is scarce and research examining all facets of RtI is desperately needed. For example, research is needed to shed light on the process of designing and implementing Response to Intervention models in order to help educators create models for their own schools and districts efficiently and effectively (Sawyer, Holland & Detgen, 2008; Wright, 2007). Research on the effectiveness of RtI on addressing student needs and raising student achievement is also needed (Fuchs, Mock, Morgan, & Young, 2003; Gresham, 2001; Wright, 2007).

Two purposes guided this concurrent nested mixed methods research. First, the qualitative component of the study examined and described the
processes followed and experiences had by the administrators, teachers, and specialists involved in designing and implementing a new Response to Intervention model at an elementary school in the Northern Rocky Mountain Region. The quantitative portion of the study examined the effectiveness of the Response to Intervention (RtI) model on raising achievement scores in reading after its first year of implementation.

**Methodology**

A concurrent nested mixed methods design (Creswell, 2007) was used to qualitatively describe the process of RtI design and implementation and quantitatively evaluate its effectiveness after its first year of full implementation. The qualitative portion of this study, an intrinsic case study (Johnson & Christensen, 2004), comprised interviews and the collection of documents and materials; these data were used to describe the process followed by the district and school within which this study took place to design and implement a new Response to Intervention model. The quantitative portion of the study examined reading achievement data on three reading assessments and compared the achievement of students who received reading intervention with those who did not; the primary analysis conducted was a regression discontinuity analysis.

The findings from this study provide insight into the Response to Intervention model by: (1) illuminating the process involved in creating, designing, and implementing a new RtI model in an urban school; (2) describing the Response to Intervention model in practice; (3) exploring the experiences of
the specialist teachers, classroom teachers, and administrators involved in designing and implementing the RtI model; (4) while also quantitatively evaluating the effectiveness of the RtI model on raising reading achievement scores in a natural setting; and finally (5) providing guidance and information to help other schools and districts successfully implement a Response to Intervention model to meet the need of their students.

**The Structure of This Dissertation**

The remainder of this dissertation consists of five chapters. Chapter 2 contains a literature review addressing the history of pertinent educational policy and legislature, the current Response to Intervention reform movement, existing research on Response to Intervention, and the areas in which the current body of research is lacking. Chapter 3 specifies the research methodology used in conducting this study. Chapter 4 contains the findings of the qualitative portion of the study while Chapter 5 contains the results of the quantitative portion of the study. Chapter 6 includes a synthesis of the two forms of data, an interpretation and discussion of the implications of the findings, suggestions for implementation of highly effective Response to Intervention models, and recommendations for future research. Chapter 6 will also describe the manners in which Jessica and Michael were impacted by their participation in the Response to Intervention model.
Chapter Two: Literature Review

The History

A history of policy

A long history of policy and legislation in education has led to a variety of school reform movements and educational models intended to create equal opportunity for educational success of all children. Beginning as far back as the Equal Education Opportunities Act of 1974, the Education for All Handicapped Children Act (EAHCA) of 1975 (Holdnack & Weiss, 2006) and continuing through more recent legislation such as the Elementary and Secondary Education Act (ESA) and the Improving America’s Schools Act (IASA) of 1994, the No Child Left Behind Act (NCLB) in 2001, and the Individuals with Disabilities in Education Improvement Act (IDEA) of 2004, the federal government has taken an increasingly active role in regulating and attempting to strengthen the American education system (Shaul & Ganson, 2005).

Introduction of the IQ-Achievement Discrepancy Model.

A number of educational policies and legislation were created to address the specific needs of individual students, including students for whom traditional public schooling was not adequate or effective. For example, the Education for All Handicapped Children Act (EAHCA) described the criteria for identifying if a student has learning disability and delineated the entitlement programs and
benefits provided to him (Holdnack & Weiss, 2006). The EAHCA of 1975 was one of the first regulations to specify how students with disabilities, such as specific learning disabilities (SLD), should be identified in the schools (Martinez, Nellis, & Predergast, 2006). This act stated that a disability is present when a severe and otherwise inexplicable discrepancy exists between the student’s ability to perform in school and his actual performance in school (Martinez et al., 2006); in other words, a disability is present when there is a considerable incongruity between a child’s intelligence and his achievement (e.g., Gresham, 2001; Hollenbeck, 2007; Mellard, Deshler, & Barth, 2004; Reschly & Hosp, 2004). In order to assess whether or not a severe discrepancy existed, schools typically compared results of IQ tests to results of other standardized assessments to determine if his performance on the standardized assessment was commensurate with what would be expected of him based upon his intelligence (Feifer, 2008).

This IQ-achievement discrepancy legislation has had a number of long standing effects on the public school system as a whole. While the legislation has done much to address students with special needs, a number of criticisms of this model have arisen (e.g., Feifer, 2008; Fuchs, Mock, Morgan, & Young, 2003; Fuchs, Fuchs, & Compton, 2004; Gardland, & Strosnider, 2005; Gersten & Dimino, 2006; Hale, Kaufman, Naglieri, & Kavale, 2006; Holdnack & Weiss, 2006; Vellutino, Scanlon, Small, & Fanuele, 2006). Some of the major criticisms of the IQ-achievement discrepancy model include: the lack of consistency in regulations and policies defining what constitute a severe discrepancy;
inconsistencies in the process of identifying a discrepancy; the “wait to fail”
nature of the model; the unreliable and unstable nature of the results; the over-
representation of minorities and students from disadvantaged backgrounds in
special education as a result of the model; the presence of numerous uncontrolled
extraneous variables that potentially impact the results of standardized
assessments; the heavy weight placed upon a single measure of intelligence and
achievement; and, most importantly for this dissertation, the exclusion of certain
individuals from receiving additional services who fail to meet IQ-discrepancy
guidelines.

**Criticisms of the IQ-Discrepancy Model**

While the identification of learning disabilities is not the focus of this
dissertation, the policies and regulations governing SLD identification and the
resulting practices provide relevant background information regarding the current
large scale reform movement examined in this research. A few of the major
criticisms of the IQ-achievement discrepancy model for serving all students and
determining special educational services and the impact these shortcomings have
had on students in public schools as well as on future legislation and practice will
be discussed here.

*Inconsistent implementation.*

A primary criticism of the IQ-achievement discrepancy model for
identifying students in need of special education services is the inconsistency with
which the model is implemented (Kavale, Holdnack, & Mosert, 2005; Martinez et
al., 2006; Ysseldyke, 2005). This criticism is multifaceted in that the IQ-achievement discrepancy model is inconsistent both in terms of policy and process. For example, in a study conducted by the Center for Evaluation and Educational Policy, Martinez et al. (2006) stated that “at the federal level, procedures for determining such a ‘discrepancy’ were not delineated and guiding principles for operationalizing ‘severe’ were never articulated.” This lack of specificity has led to inconsistencies in assessments used and a lack of agreement on the magnitude of a discrepancy that would qualify a student to receive special education services (Feifer, 2008). According to Fuchs and Fuchs (2006), the extent and definition of a discrepancy varies nationwide in terms of how the discrepancy is computed, the size of the discrepancy, and which tests are used to determine the discrepancy. Holdnack and Weiss (2006) found that discrepancy criteria were applied inconsistently based upon educators’ desire to provide special education services to students who appeared to be in need of help but did not fall within predetermined boundaries for qualification. These inconsistencies led to a number of problems nation wide; in some cases for example, students would qualify for special services in one state and be denied services in another due to conflicting qualification criteria (Holdnack & Weiss, 2006).

*False positives and false negatives.*

Using a single diagnostic measure to assess intelligence and/or achievement also can also give misleading results. First of all, a single snap-shot view of a student that involves data collection from one point in time is unstable.
and unreliable (Martinez et al., 2006) due to the dynamic nature of learning processes, particularly at the elementary level. This is especially true for young students in the primary grades (Holdnack & Weiss, 2006). Secondly, heavy reliance on a one-time assessment is more likely to lead to a high frequency of false positives and false negatives depending upon the assignment of cut-off criteria (Holdnack & Weiss, 2006). According to Holdnack and Weiss (2006), strictly adhering to a higher discrepancy cut-off score leads to an increased likelihood of false negatives and a decreased likelihood of false positives. This means that the students who are placed in special education are those who truly have the greatest discrepancy between their intelligence and their performance, but the results may inaccurately portray the abilities of other students to succeed in mainstream education thereby excluding them from services they may desperately need. On the other hand, lowering cut-off scores to serve students with a smaller IQ-achievement discrepancy leads to an increase in false positives, placing more students in special education, some of whom may not need the services and may end up being labeled incorrectly and unnecessarily.

*Over-representation of minority students in Special Education.*

Placing students in special education programs as a result of IQ-achievement discrepancies has also led to an overrepresentation of minorities in special education services (Feifer, 2008; Fuchs, Fuchs, & Speece, 2002; Gartland & Strosnider, 2005; Heller, Holtzman, & Messick, 1982; Hollenbeck, 2007; Klinger & Edwards, 2006; Riddle Bully & Valencia, 2002). This
overrepresentation of minorities in special education has led to two major criticisms; the first criticism is in regards to the use of the IQ-achievement discrepancy as a means of diagnosing learning disabilities. The second criticism concerns whether or not the public school system is adequately addressing the needs of minority students in the mainstream classrooms (Fuchs, Fuchs, and Speece; 2002). According to Fuchs, Fuchs, and Speece (2002), research coming from the National Research Council (NRC) has shifted in focus from attempting to lower the overrepresentation of minorities in special education (and the process for identifying special needs) to examining the circumstances that would prevent the need for special education services in the schools by creating a more supportive environment for minority children. This changing focus is one of the many contributing factors that have led to current reform movements both in the identification of special needs as well as the prevention and remediation of academic failure.

"Wait to fail."

In addition to the myriad problems pertaining to the reliability and validity of the IQ-achievement discrepancy model, many educators complain that the model perpetuates a “wait to fail” cycle within the schools that sets students up for perpetual academic failure (Mceneaney, Lose, & Schwartz, 2006). In order to demonstrate that a discrepancy between ability and achievement exists, schools must oftentimes wait until students have struggled academically for extended periods of time. Many districts wait until students are in second or third grade to
investigate whether a discrepancy between ability and achievement exists (Gersten and Dimino, 2006) in part because learning disabilities are difficult to identify until students have reached third grade (Gartland & Strosnider, 2005). According to Fuchs and Fuchs (2006), students must fall markedly behind their peers in subjects such as reading or mathematics in order to qualify for special education services. However, allowing students to fail for multiple years in elementary school before intervening is harmful for the student in the long run (Martinez et al.; 2006) and a large body of research demonstrates that reading difficulties can be remedied through early intervention and are more difficult to remediate in later grades (Hollenbeck, 2007; Jenkins, Hudson, & Johnson, 2007; Justice, 2006; National Reading Panel, 2000; Pedrotty Bryant, Bryant, Gersten, Scammacca, & Chavez, 2008; Schatschner, Wagner, & Crawford, 2008; Vaughn, Fletcher, Francis, Denton, Wanzek, Wexler, et al, 2007). This practice, according to Steven Feifer (2008) directly contradicts the National Reading Panel’s suggestions stressing the importance of early intervention. The importance of early intervention to prevent reading and other academic difficulties will be discussed shortly.

*Exclusion of those in need.*

One of the biggest problems resulting from the reliance on the IQ-achievement discrepancy model for determining student services is that many students who may benefit from additional interventions are excluded from them because they do not meet the criteria for having a severe discrepancy between
ability and achievement (Feifer, 2008; Fuchs & Fuchs, 2006; Fuchs, Fuchs, & Compton, 2004; Fuchs, Mock, Morgan, & Young, 2003; Holdnack & Weiss, 2006; Hollenbeck, 2007). According to Feifer (2008), approximately 50% of students who actually do have learning disabilities in reading do not qualify for special education services because they do not show a severe enough discrepancy between intelligence and performance. Additionally, students who may benefit from supplementary services due to lower intelligence do not receive these services because, though they are not achieving at grade level, they are not technically “underachieving” as defined by IQ-achievement discrepancy regulations, (e.g. Feifer, 2008; Fuchs & Fuchs; 2006; Fuchs, Mock, Morgan, & Young; 2003). In the long run, there are more children who are not being adequately served due to the current structures in place in the public school system than there are children whose needs are met.

**Changes in Policy**

The criticisms of the manner in which students are assessed for having a learning disability and determining the services to which they are entitled have led to great frustration for educators and policy makers alike; frustrations regarding special education as well as mainstream education. One of the members of the President’s Commission on Excellence in Special Education, Wade Horn, stated that he would “encourage the Commission to drive a stake through the heart of this over-reliance on the discrepancy model for determining the kinds of children that need services” (Fuchs, Mock, Morgan, & Young; 2003, p. 158). If that isn’t
a damning report, I don’t know what is. As a result of such a pervasive outpouring of disapproval and dissatisfaction, policies have begun to change.

**No Child Left Behind Act of 2001**

In 2001, the No Child Left Behind Act (NCLB) was passed, expanding the federal government’s role in regulating and overseeing the effectiveness of public education (NCLB, 2001; Shaul & Ganson, 2005). In order to better monitor the learning of students across the nation, NCLB mandated a number of new policies that had either been voluntary or had been overlooked by previous policy. For example, following the enactment of NCLB, states were no longer offered the opportunity to opt out of the National Assessment of Educational Progress (NAEP), an assessment that is given at random to students in all public school systems (Shaul & Ganson, 2005). This assessment, dubbed “The Nation’s Report Card,” has been used for two purposes: first, as a general measure of progress in education; second, to evaluate the rigor of each state’s standards as compared to state and national standards (Shaul & Ganson, 2005). One of the recurring findings of the National Assessment of Educational Progress as well as other large-scale assessments was a significantly lower level of achievement of students from diverse and disadvantaged backgrounds (Shaul & Ganson, 2005).

A second major policy change resulting from the No Child Left Behind Act was the requirement that all states, districts, and schools report whether or not their students were making “adequate yearly progress” (AYP) towards meeting state standards (Shaul & Ganson, 2005). While AYP reports were required by the
Improving America’s Schools Act of 2004, new requirements under NCLB mandated that AYP rates of subgroups of students, such as those from diverse and disadvantaged backgrounds, be reported (Shaul and Ganson, 2005). Once again, these subgroups continued to fall behind. Findings from NAEP, AYP reports, as well as the National Research Council’s (NRC) analysis of the over representation of minorities in special education triggered major overhauls in public education legislation (Fuchs, Fuchs, & Speece; 2002).

**Individuals with Disabilities in Education Act of 2004**

In order to address the particular needs of diverse and disadvantaged learners, the Individuals With Disabilities Education Act (IDEA; 2004) modified, updated and improved educational conditions and opportunities available in the public schools (Holdnack & Weiss, 2006). IDEA focused on improving the state of education for all students, including those receiving special education services as well as those who might benefit from additional interventions whose needs were not yet being met. A major change resulting from this new policy was the opportunity for schools to use novel methods for assessing student abilities and placing students in special education interventions replaced the ubiquitous yet ineffective IQ-achievement discrepancy model (Feifer, 2008; Fuchs & Fuchs, Hale; 2006; Holdnack & Weiss, 2006; Hollenbeck, 2007). Specifically, the policy stated that “In determining whether a child has a specific learning disability, a local educational agency may use a process that determines if the child response to scientific, research-based interventions as a part of the
evaluation procedures” (IDEA; 2004 as cited in Hollenbeck, 2007, p. 137). With this new freedom, new methods for addressing the needs of struggling students have emerged.

**New Understandings and Ideas**

**The importance of early intervention**

A growing body of evidence suggests that providing early intervention to struggling students, especially those struggling with reading, can prevent long-term academic failure and avoid the need for student placement in special education (Berninger, Abbott, Vermeulen, Ogier, Brooksher, Zook, & Lemos, 2002; Gersten et al., 2008; Juel, 1988; Mathes, Denton, Fletcher, Anthony, Francis, and Schatschneider, 2005; Morris, Bloodgood, & Perney, 2003; Pedrotty Bryant, Bryant, Gersten, Scammacca, & Chavez, 2008; Santa & Hoiien, 1999; Torgesen, Alexander, Wagner, Rascotte, Voeller, Conway et al., 2001; Torgesen, Wagner, Rashotte, Lindamood, Conway, et al., 1999; Vellutino, Scanlong, Small & Fanuele, 2006; Vellutino, Scanlon, Sipay, Small, Pratt, Chen, et al., 1996; Vellutino, Scanlon, Small, Fanuele, 2006.) Sharon Vaughn and her colleagues (2008) also reported that the majority of research suggests that early intervention is the key to preventing later problems with reading and that, the longer at-risk students are without proper instruction and intervention, the more difficult these issues become to remedy. More than two decades ago, Juel (1988) found that students who do not properly learn to read by the end of first grade will remain poor readers throughout their schooling if proper interventions do not occur.
More recently, studies conducted by Vellutino and colleagues (e.g., Fuchs, 2003; Vellutino et al., 1996, 2003, 2006), revealed that the incorporation of reading interventions in kindergarten and first grade resulted in the prevention of early and long-term reading difficulties for the majority of struggling students. These researchers found that reading difficulties could be effectively identified and resolved as early as kindergarten for most at-risk students and that difficulties in reading were more often due to lack of proper instruction than poor cognitive ability (Vellutino et al., 2006). From their studies, Vellutino and colleagues determined that early intervention and prevention of reading difficulties was more effective and less expensive than later remedial special education programs (Vellutino et al., 1996; 2006).

Laura Justice (2006) also discussed the importance of early intervention in the prevention of long-term academic failure. Agreeing with Juel’s (1988) findings, Justice’s research confirmed that many of the difficulties faced by poor readers in early grades remain problematic throughout their education and that many of these issues were a result of poor instruction and lack of remedial intervention (Justice, 2006). Agreeing also with Vellutino’s findings (1996, 2003, 2006), Justice pointed out that the “reading difficulties of a large majority of pupils can be prevented if early and intensive interventions are provided” (p. 294).

Findings from the National Reading Panel’s (2000) report also emphasize the importance of early intervention in the prevention of reading difficulties (Feifer, 2008; NRP, 2000). After being commissioned by Congress to assess and
evaluate the existing research on teaching children to read, the Panel released a report in 2000 called “Teaching Children to Read: An Evidence Based Assessment of the Scientific Research Literature on Reading and its Implication for Reading Instruction” (NRP, 2000). The report evaluated and discussed the effectiveness of a variety of methodologies for teaching reading and found that key themes emerged, one of which being the “importance of early identification and intervention for all children at risk of reading failure” (NRP, 2000; p. 2).

Current educational policies coming from the federal government reflect these findings. As discussed above, the No Child Left Behind Act of 2001 has highlighted the importance of implementing “preventive interventions for children showing vulnerabilities for reading failure” (Justice, 2006) and mandates that schools put into practice more effective ways to address early reading difficulties while at the same time ensuring that students with reading disabilities are properly identified and serviced.

**The Treatment Validity Model**

New models for identification and treatment of academic difficulties that emerged to replace the IQ-achievement discrepancy model took into account the importance of early intervention as well as the criticisms of the discrepancy model, one of which being the lack of useful information the findings provided for instruction (Fuchs, Fuchs, & Speece; 2002, Martinez et al., 2006). In order to develop a model that identified students in need of special education services and also provided useful information for instruction, researchers such as Fuchs, Fuchs,
and Speece (2002) have suggested the use of a treatment validity approach to determine special education eligibility. According to their research, “with a treatment validity approach, the value of an eligibility assessment process is judged by its capacity to simultaneously inform, foster, and document the necessity for and effectiveness of special treatment” (Fuchs, Fuchs, and Speece; 2002). This model draws from suggestions made by Heller, Holtzman, and Messick’s (1982) NRC study suggesting that the validity of a special education program should be evaluated based upon three major criteria: (1) the mainstream classroom instruction was effective, (2) the special education program offered was also effective in improving student achievement, and (3) that the assessments used to monitor and evaluate student growth was effective (Fuchs, Fuchs, & Compton; 2004).

A treatment validity approach differs from the more traditional IQ-achievement discrepancy approach both in purpose as well as in application. Goals of the model include decreasing the over representation of minorities in special education; using ongoing data collection and analysis to inform instruction, remediating school failure due to poor instruction; and differentiating between students with learning disabilities and those without. Whereas the IQ-achievement model placed students in special education services when a significant incongruity existed between ability and achievement, a treatment validity model seeks to establish that a “dual discrepancy” exists before placing students in special education (Fuchs, Fuchs, & Speece, 2002). A “dual
discrepancy” is described as a combination of unsatisfactory performance along with an insufficient rate of growth; this can be identified when a student is performing at level significantly lower than his classmates and exhibits a substantially lower rate of learning than his peers (Fuchs & Fuchs, 2006; Fuchs, Fuchs, & Speece, 2002). This dual discrepancy can only be established when the three criteria proposed by Heller, Holtzman, and Messick (1982) have been met.

**Phases of a Treatment Validity Model**

Fuchs, Fuchs, and Speece (2002) proposed a four-phase treatment validity model as an alternative method for identifying students with learning disabilities to be used in the schools. In this model, Phase I consists of using a large scale curriculum based measure (CBM) with all students in the classroom in order to establish whether or not mainstream classroom is generally effective in meeting the needs of the majority of students. This initial measure reveals a number of useful pieces of information. First of all, each of the classrooms in the school or schools in the district can be examined to quantitatively ensure that all students are making adequate progress towards standards attainment or proficiency. If each of the classrooms or schools is demonstrating adequate levels of proficiency, one can conclude that general instruction is effective. This meets the first of Heller, Holtzman, and Messick’s criteria for establishing a valid and valuable educational program (1982). However, if this broad assessment reveals significant differences between classrooms or schools, intervention at the
classroom or school level can be implemented to ensure that instruction in all schools and classrooms is effective.

A second piece of information revealed by this ongoing curriculum based assessment is whether or not there are particular students who are failing to make adequate progress in a generally effective program. When one can establish that instruction in the environment is generally effective, yet an individual student is performing significantly below his peers while at the same time not making sufficient growth, a dual discrepancy can be established (Fuchs, & Fuchs, 2006; Fuchs, Fuchs, & Compton, 2004; Fuchs, Fuchs, & Speece, 2002). Identification of students with a dual discrepancy constitutes Phase II of a treatment validity approach.

Phase III of this model involves creating a program or sequence of interventions to be put in place in order to meet the additional needs of students with dual discrepancies while monitoring student progress on a regular basis. A variety of instructional interventions, modifications, and accommodations can then be implemented in the mainstream classroom to help dual discrepant students achieve at a higher level. As a result of the ongoing assessment of the particular student, individualized interventions can be personalized to address the student’s unique challenges. At this point, “only when corrective action fails to yield improved growth does consideration of special services to supplement the general education program become warranted” (Fuchs, Fuchs, & Speece, 2002).
The fourth and final phase of a treatment validity model involves implementing special educational services to meet the needs of the still struggling student. If these specialized services prove to be effective, demonstrating that a learning disability exists and that special education is effective in addressing this disability, the student is classified as having a specific learning disability (SLD). However, if the special education is not deemed effective, an SLD classification is not given and the student returns to the mainstream classroom. This last component, however, has generated a bit of controversy. While Heller, Holtzman, and Messick (1982) suggested that a special education model is validated in part by its ability to positively affect student outcome, just as the IQ-achievement discrepancy model has been criticized for excluding students who need remedial services due to perpetually low achievement, so too does a treatment validity model. This missing piece will be further addressed shortly.

The final of Heller, Holtzman, and Messick’s (1982) criteria for establishing the validity of a special education model is the use of a valid and reliable measure to assess student learning (Fuchs, Fuchs, & Speece, 2002). Lynn Fuchs (Fuchs, 1995; Fuchs, Fuchs, & Speece, 2002) suggested using curriculum based measurements (CBM) to do so. A CBM is a measurement of achievement in a specific content area, such as reading, math, writing, or spelling given on a regular basis for the purpose of providing frequent, detailed, and current information on student progress (NCSPM, 2008). The use of curriculum-based measurements allows for valid and reliable data on student progress that can be
utilized to both monitor student progress as well as to demonstrate the existence of a dual discrepancy and help in special education classification (Fuchs, 1995; Fuchs and Fuchs, 1998; Fuchs, Fuchs, and Speece, 2002), thereby fulfilling the Heller, Holtzman, and Messick’s final criteria for program validity (1982).

**What was missing**

Though the treatment validity approach made great strides towards addressing the special needs of struggling students and was a significant improvement over the IQ-achievement discrepancy model, it still showed one major flaw: it did not necessarily address the needs of all struggling students. Phase IV of the model is where this problem surfaced (Fuchs, Fuchs, & Speece, 2002). As discussed above, a specific learning disability classification is made when a student fails to adequately respond to effective general education but does show significant improvement when specialized interventions are put in place (Fuchs, Fuchs, & Speece, 2002). However, a student is not classified as being learning disabled if he does not respond to these special education services; this student is then returned to the general education classroom without receiving further intervention, special education services, or an SLD classification. While the treatment validity approach showed great promise to more authentically evaluate students for learning disabilities, it still failed to help many struggling students to succeed in school.
Response to Intervention (RtI)

As a consequence of the changes in policy brought about by NCLB (2001) and IDEA (2004), the criticisms of the IQ-achievement discrepancy model for identifying special education needs, research on the importance of early intervention and remediation, and guided by research on treatment validity approaches in addressing student needs, a new era in school reform was born: Response to Intervention or RtI.

What is RtI? The purpose and goals

Response to Intervention has come out of the movement favoring the use of a treatment validity approach for special education classification, as suggested by researchers such as Lynn Fuchs (Fuchs, 2003; Fuchs, Fuchs, & Speece, 2002; Vaughn & Fuchs, 2006). It is a multi-tiered method for providing intervention to struggling students based upon ongoing formative data collection; these data are used to evaluate general education effectiveness, student need, and student progress, as well as to aid in determining special education classification and intervention (Fuchs, 2003, Fuchs & Fuchs, 2006; Fuchs, Fuchs, & Speece, 2002; Fuchs, Mock, Morgan, & Young, 2003; Gersten & Dimino, 2006; Gersten et al., 2008; Jenkins, Hudson, & Johnson, 2007; Justice, 2006; Marston, 2005; Sawyer, Holland & Detgen, 2008;; Vaughn & Fuchs, 2006). RtI is a preventative measure because it follows best practices as advised by the National Reading Panel (NRP, 2000) suggesting that early intervention for struggling readers can remedy
problems once believed to be cognitive rather than environmental in nature (Justice, 2006; Martinez et al., 2006).

RtI is at once a policy as well as a practice (Justice, 2006). The model was designed in response to federal legislation such as the Individuals with Disabilities in Education Act (IDEA) of 2004 and No Child Left Behind Act (NCLB) of 2001 that mandate new approaches to the identification of specific learning disabilities (Fuchs & Fuchs, 2006; Gersten et al., 2008). Response to Intervention appears to be addressing a number of the major concerns regarding earlier policies delineating the identification of students with specific learning disabilities. First of all, as discussed above, early intervention for struggling students is crucial in the prevention of long-term reading problems and potential special education classification (Fuchs, 2003; Fuchs & Fuchs, 2006; Fuchs, Mock, Morgan, & Young, 2003; Gartland & Strosnider, 2005; Gersten & Dimino, 2006; Sawyer, Holland & Detgen, 2008; Gersten et al., 2008; Justice, 2006). Second, RtI addresses the needs of all struggling students early on, thereby removing the “wait to fail” component of special education classification that limited interventions provided to struggling students (Fuchs, 2003; Fuchs & Fuchs, 2006; Fuchs, Mock, Morgan, & Young, 2003; Justice, 2006; Martinez et al., 2006). Third, RtI has the potential to reduce the number of false positives and false negatives that come as a result of using a single occasion assessment device to place students in special education; this is because the RtI model relies on the use of ongoing longitudinal data collection and review as well as multiple sources of
data (Gersten et al., 2008). Fourth, the RtI model has shown great promise in reducing the over representation of minorities in special education (Fuchs, Mock, Morgan, & Young, 2003; Gersten et al., 2008). Additionally, because the cost of special education is approximately two to three times that of regular education, by addressing student needs early and thereby preventing the need for special education, RtI may be a more cost effective model for educating students (Fuchs & Fuchs, 2006).

The goal of all RtI models is to raise the achievement of all students (Vaughn et al., 2007). Response to Intervention is defined as “providing high-quality, evidence-based instruction with interventions matched to student need, frequently monitoring student progress, and applying data on student progress to important education decisions” (Sawyer, Holland & Detgen, 2008; Vaughn & Fuchs, 2003). According to Fuchs, Mock, Morgan, and Young (2003), in an RtI model:

1. Students receive “generally effective” instruction from their classroom teacher;
2. The progress of all students is monitored;
3. Those who do not respond get some sort of intervention work, either by their classroom teacher or by a specialist;
4. Progress continues to be monitored;
5. Those who still do not respond either receive additional interventions or qualify for special education or for special education evaluation.

This process is used to ensure that all students are receiving the services and interventions they need in order to succeed academically.

According to researchers such as Laura Justice (2006) out of the University of Virginia, there are three crucial principles of an RtI model: schools must ensure that the primary educational environment, the general education classroom, provides effective education (especially in reading) to all students; the progress of all students is monitored carefully to determine if intervention is necessary; and that additional levels of intervention build upon effective classroom instruction while progress continues to be monitored.

The needs of the majority of students will be met when high-quality, evidence-based practices are taking place in the regular classroom (Justice, 2006). Research suggests that, when effective, high-quality instruction is provided to all students in the mainstream classroom, “80-90% of students of the students will respond and achieve the established benchmarks” (Kemp & Eaton, 2008, p. 16; Podhajski, 2008). As discussed above, many of the problems faced by struggling students could have been mitigated, had ample opportunities for success in regular education been provided, thereby eliminating the need for special education services for some students (Fuchs, 2003; Fuchs, Mock, Morgan, & Young, 2003; Gartland & Strosnider, 2005; Sawyer, Holland & Detgen, 2008; Gersten et al.,
To ensure that 80-90% of students’ needs are being addressed and adequately met, a number of elements need to be put into practice by a school implementing an RtI model. Laura Justice (2006) suggests that an audit be used to evaluate the effectiveness of the general education classroom. This audit should examine teachers’ instructional approaches and priorities, curriculum and materials being used, time spent devoted to reading instruction, and the general structure of the classroom (e.g., the presence of a literature rich environment).

The second key principle of an RtI model is frequent progress monitoring of student advancement (Fuchs, 2003; Fuchs & Fuchs, 2006; Fuchs, Fuchs, & Compton, 2004; Fuchs, Mock, Morgan, & Young, 2003; Justice, 2006). In an RtI model, all students are given a number of assessments throughout the year. These data, referred to as “universal screenings,” provide two valuable pieces of information: first, that the class as a whole is making adequate progress, demonstrating that the environment is generally effective, and second, struggling students can be identified quickly for early intervention (Fuchs, Fuchs, & Compton, 2004; Fuchs, Fuchs, & Speece, 2002; Fuchs, Mock, Morgan, & Young, 2003). Additionally, these data are used to group students by need and to individualize instruction and possible intervention work (Justice, 2006). A variety of progress monitoring tools are available for schools, including curriculum-based measures such as the Dynamic Indicators of Basic Early Literacy Skills.
(DIBELS), the Phonological Awareness Literacy Screening (PALS), the NWEA Measure of Academic Progress (MAP), AIMSweb, and others (Kovaleski, 2007).

The third critical element of an RtI model is the availability of additional levels of support for struggling students that extend the instruction of the mainstream classroom (Fuchs, 2003; Fuchs & Fuchs, 2006; Fuchs, Fuchs, & Compton; Fuchs, Mock, Morgan, & Young, 2003; Sawyer, Holland & Detgen, 2008; Gersten et al., 2008; Justice, 2006; Martinez et al., 2006). Despite the best efforts of highly effective teachers, some students still do not make adequate progress. According to Kemp and Eaton (2008) and Podhajski (2008), 5-15% of students will require supplemental instruction and intervention to attain academic proficiency. Ongoing progress monitoring will likely reveal this handful of students, still in need of additional services and intervention; these services should be provided to any and all students who demonstrate such a need. The additional services provided in an RtI model do not take the place of the general education instruction, but instead supplement it through the implementation of small group and individual intervention (Justice, 2006). These interventions must be tailored to the needs of individual students and small groups in need of remediation or additional instruction in specific areas, such as phonemic awareness or decoding.

When all accommodations, modifications, and interventions fail and a student still remains unresponsive, the presence of a learning disability may become evident (Fuchs, 2003; Fuchs & Fuchs, 2006; Fuchs, Fuchs, & Compton; Fuchs, Fuchs, & Speece, 2002; Fuchs, Mock, Morgan, & Young, 2003; Gartland
& Strosnider, 2005; Gerten & Dimino, 2006; Sawyer, Holland & Detgen, 2008; Gersten et al., 2008; Justice, 2006; Marston, 2005; Martinez et al., 2006). At this point, special education evaluation and classification for a specific learning disability is deemed appropriate.

**The structure of RtI**

Implementing a Response to Intervention model requires a systemic change that involves all teachers and all classrooms (Danielson, Doolittle, & Bradley, 2007). Because one of the primary foci of the model is high-quality, evidence-based instruction, the first step in an RtI model is ensuring that all classrooms are highly effective in meeting the needs of students. Implementing ongoing formative assessment to monitor the progress of all students can be a monumental task as well. Specialist teachers must also be able to provide effectual interventions to students who fail to make sufficient progress in the mainstream classroom. Additionally, administrators must be prepared to support the entire process. In order to put into practice an effective RtI model, all involved must be knowledgeable of the structure and willing and able to implement the design.

**Tiers**

The majority of Response to Intervention models consists of three tiers of instruction, assessment, and intervention (Vaughn et al., 2008). The first tier of instruction requires the implementation of highly-effective, evidence-based instruction for all students in mainstream classrooms. All students are assessed
regularly; the progress of individuals and whole classrooms are monitored to ensure adequate student progress is made, signifying that general education instruction is effective. For children who do not make acceptable growth, supplemental instruction and interventions are put into place in the second tier; the progress of these students is monitored frequently to keep apprised of their response to these interventions. For students who continue to make insufficient growth, tier three of the model involves additional support, and potentially includes evaluation for the presence of learning disabilities and possible special education classification.

**Tier 1: Universal Instruction.**

There are two major components to Tier 1 of an RtI model: high quality mainstream classroom instruction and ongoing assessment to monitor the progress of all students. In an RtI classroom, “scientifically sound” core curriculum is implemented by the classroom teacher in order to provide ample opportunities for students to experience academic success and make adequate yearly progress (Gartland & Strosnider, 2005; Martinez et al., 2006; Schatschneider et al., 2008). This tier is oftentimes referred to as “primary prevention” as it follows the suggestions made by researchers to prevent academic difficulties and long-term failure (Martinez et al., 2006). Within the mainstream classroom, students receive differentiated instruction based upon their individual needs as well as the information provided by the ongoing formative assessments used (Gartland & Strosnider, 2008).
Curriculum-based measures (CBM) of assessment are given to all students periodically over the course of the school year; typically, student progress is assessed three times annually: in the fall, winter, and spring (Martinez et al., 2006; Schatschneider et al., 2008). The CBM data provide valuable information about student growth as well as group progress in each classroom (Fuchs, Fuchs, & Speece, 2002). Assessment data give teachers information to help guide instruction, it gives administrators data about the effectiveness of the general educational setting, and it allows for early identification of students at risk for failure (Feifer, 2008). Students who remain unsuccessful in the generally effective mainstream setting progress to the second tier of the Response to Intervention model.

*Tier 2: Targeted Intervention.*

Tier 2, oftentimes referred to as ‘targeted intervention’, tends to the needs of the 5-10% of students whose progress is unsatisfactory and for whom regular classroom instruction does not appear to be sufficient (Marston, 2005). There are two primary structural approaches to Tier 2: the Problems Solving Model (PSM) and the Standard Treatment Protocol (STP) (Fuchs & Fuchs, 2006). These two structures will be discussed below, but certain commonalities are shared by both.

In the second tier of RtI, collaboration between some combination of classroom teachers, specialists, administrators, and parents occurs in order to identify and address the specific areas in which individual students are struggling and need assistance or remediation (Gartland & Strosnider, 2005). Students
identified by these data as needing supplemental services receive additional interventions, either within the mainstream classroom (delivered by the classroom teacher) or outside of the classroom (delivered by a specialist teacher). These targeted interventions are supplementary and do not take the place of general classroom instruction. Tier 2 is oftentimes referred to as “secondary intervention” (Martinez et al., 2006) and takes place in small groups of five or fewer students (Marston, 2005). These interventions are targeted to meet the specific needs of the students and are more intense in both time and focus that instruction or intervention delivered in Tier 1 (Mesmer & Mesmer, 2008).

For students in Tier 2 interventions, progress is monitored more frequently than for students responding adequately to mainstream classroom instruction; typically, progress is monitored using a CBM on a weekly or bi-weekly basis (Martinez et al., 2006). These data drive further instruction and modifications to ongoing intervention (Gartland & Strosnider, 2005). For many students, this intensive, remedial intervention proves effective; they may either be returned to the mainstream classroom without further intervention, or may receive continued intervention to maintain appropriate levels of growth and progress (Martinez et al., 2006). However, approximately 1-5% of students may still fail to respond to these interventions (Kemp & Eaton, 2008; Podhajski, 2008). These students progress to the third tier of the RtI model.
**Tier 3: Intensive Intervention.**

While Tier 3 interventions and procedures differ from school to school and district to district, two commonalities exist in all Tier 3 intervention: first, the intensity of the intervention increases (time spent in intervention, frequency of intervention, and type of intervention) and second, evaluation for the presence of a specific learning disability occurs when student growth remains inadequate. Interventions in Tier 3 are more intensive and individualized than interventions in Tier 2 and takes place in one-on-one sessions or very small groups of fewer than 5 students (Fuchs, 2003; Fuchs & Fuchs, 2006; Martinez et al., 2006; Schatschneider et al., 2008). According to Gartland and Strosnider, in Tier 3, “intensive, systematic, specialized instruction is provided and additional RtI data are collected” (Gartland & Strosnider, 2005, p. 251). With parental consent, evaluation consisting of multiple sources of data may be conducted in order to help determine whether or not a specific learning disability is present (Fuchs, 2003; Fuchs & Fuchs, 2006; Fuchs, Mock, Morgan, & Young, 2004).

**The major forms of RtI**

There are two primary Response to Intervention structures implemented in schools to address student needs: the Problem Solving Model (PSM) and the Standard Treatment Protocol (STP) (Fuchs, Mock, Morgan, & Young; 2003).

*The Problem Solving Model.*

Most commonly implemented in the schools, the Problem Solving Model (PSM) is an inductive approach to addressing concerns regarding student
achievement (Fuchs, Mock, Morgan, & Young, 2003). This methodology, adapted from research on behavioral problem solving and collaborative consultation, is based upon the premise that no single intervention will work for all students and that each case must be evaluated individually (Fuchs & Fuchs, 2006; Martinez et al., 2003). According to Fuchs, Mock, Morgan, and Young (2003), there are four stages in the problem solving model: problem identification, problem analysis, plan implementation, and problem evaluation. A team of educators gets together on a regular basis to discuss progress of individual students; students are brought to the attention of the team when assessments reveal when certain students fail to make adequate progress. The team first identifies and describes the problem an individual student is having that is impeding his progress. The team then evaluates the problem, sets goals for student growth, and determines a plan of action to intervene and address the problem using any resources available. During implementation of the plan, the team continuously monitors progress and adapts the plan and any interventions in place to best meet the needs of the student. The team evaluates the progress made during the interventions, determines its effectiveness, and decides if and how the plan needs to be modified; this process is cyclical in nature and continues as long as problems persist. Data collected over the course of the intervention time frame provide information and evidence to determine whether or not a specific learning disability is present.
A significant amount of research supports the use of the Problem Solving Model in raising achievement scores with struggling students, particularly in reading (Fuchs, Mock, Morgan, & Young, 2003). Some of the advantages of the PSM include: better personalization of interventions to meet student needs; the use of reliable and valid assessment instruments provides educators with specific information to use in personalizing interventions; the model does not lead to automatic categorization and labeling of students; and the needs of struggling students are met in the mainstream classroom, leaving special education services for the most significant of student concerns (Fuchs, Mock, Morgan, & Young, 2003). Specific studies examining the problem solving model will be described in detail later in this chapter.

The Standard Treatment Protocol.

The Standard Treatment Protocol (STP) differs from the problem solving model in that it is geared towards groups of students and follows predetermined intervention steps, rather than individualized intervention for each student (Fuchs & Fuchs, 2006). The STP seeks to provide research-based, highly effective interventions to all struggling students (Fuchs, Mock, Morgan, & Young, 2003; Vaughn et al., 2007). In a Standard Treatment Protocol, students at risk for failure as identified by CBM data are grouped by need and receive scientifically validated, standardized interventions for a predetermined length of time (Martinez et al., 2006). Progress and growth are monitored on an ongoing basis; data are evaluated to determine whether or not the intervention was successful as well as
future intervention implementation for struggling groups of students (Fuchs, Mock, Morgan, & Young, 2003; Vaughn et al., 2007).

The Standard Treatment Protocol has a number of strengths. First, because of the standardized nature of the interventions, it is easier for educators to implement (Fuchs, Mock, Morgan, & Young, 2003). When all involved in the process are aware of the specific steps to be taken, intervention procedures are better understood and can be implemented with fidelity. Secondly, the needs of a larger number of students are met when interventions are designed for groups rather individuals (Fuchs, Mock, Morgan, & Young, 2003). This means that more individuals are receiving scientifically sound interventions and their needs are being addressed. Additionally, the STP provides more rigorous and research-based information for determining special education classification (Fuchs, Fuchs, & Compton, 2004). Specific research studies examining the standard treatment protocol will be reviewed below.

Existing Research on Response to Intervention

Fuchs and friends

Lynn and Douglas Fuchs out of Vanderbilt University are two of the leading researchers in the field of treatment validity methods, including Response to Intervention, for assisting students at risk of failure, especially in reading. Studies they have conducted individually, together, and with a number of colleagues are numerous and comprehensive (e.g., Fuchs, 2003; Fuchs & Fuchs,
Lynn Fuchs, Douglas Fuchs, and Deborah Speece proposed using a treatment validity approach in a 2002 article entitled “Treatment Validity as a Unifying Construct for Identifying Learning Disabilities.” In this study, the researchers came to a number of conclusions supporting the use of a treatment validity model such as Response to Intervention, to remediate at-risk students while at the same time authentically evaluating and serving students with specific learning disabilities. As with much other research on early intervention, the Fuchs, Fuchs, and Speece article revealed that achievement gaps between normally achieving students and students with dual discrepancies were narrowed substantially following treatment (e.g., early intervention). This study revealed that specific learning disabilities may “constitute a distinct form of low achievement, more resistant to intervention” and that a treatment validity based approach would more accurately identify specific learning disabilities than an IQ-achievement discrepancy model. Additionally, they found that students identified with specific learning disabilities, identified by examining their responsiveness to intervention, more accurately reflected the larger population of public schools on demographic variables including gender and ethnicity than did groups of students labeled with a specific learning disability using the IQ-achievement discrepancy model.
Synthesizing previous research on Response to Intervention and its potential ramifications, Fuchs, Mock, Morgan, and Young (2003) explained the positive outcomes of RtI for students and schools. The researchers stated that struggling students were provided intervention and additional support at an earlier phase in their education when an RtI model used. Early intervention, they defended, proved effective in addressing the needs of struggling readers at a younger age, thereby preventing placement in special education later in their academic careers. Furthermore, Fuchs, Mock, Morgan, and Young found that using an RtI model better distinguished between students with learning disabilities and those who were struggling due to inadequate instruction in earlier grades.

In a 2003 summary of her own previous research findings, Lynn Fuchs reported that Response to Intervention (also called Intervention Response Approach in her article) showed promising results in raising achievement in struggling readers while at the same time serving as a better method for the identification of students with specific learning disabilities. She also commented that a tremendous amount is yet to be learned about the RtI process and that more research must be conducted in order to better evaluate implementation. One particular area in which she suggested research needs to occur is in regards to setting specific cut-off points to determine intervention need as well as cut-off points to determine adequate response to intervention.

Sharon Vaughn, a professor from the University of Texas at Austin College of Education, and Jeanne Wanzek, an assistant professor at the Florida
Center for Reading Research at Florida State University, have conducted a number of studies both with and without Lynn Fuchs on the effectiveness of Response to Intervention models on raising reading achievement (Vaughn et al, 2009; Vaughn et al 2008; Vaughn and Fuchs, 2006). In their research, Vaughn and Wanzek focus primarily on the importance of early intervention in addressing academic difficulties, particularly in reading, and the prevention of academic failure of struggling students. Vaughn and Wanzek (2009) also conducted a study in which they placed students either in intervention groups or comparison groups based upon assessment cut-off scores and analyzed differences in reading growth rates between the two groups using a regression discontinuity design. They found that statistically significantly different growth rates occurred favoring the students in the intervention group on measures of passage comprehension and word identification skills, indicating a positive treatment effect of the reading intervention. On measures of oral reading fluency and word attack skills, however, there were no statistically significant treatment effects.

Much of the remainder of the body of work by the Fuchs and their colleagues reveal that three reoccurring themes emerge in research on Response to Intervention models. First, early intervention is critical in addressing, preventing, and identifying learning disabilities (Fuchs, Fuchs, & Compton, 2002). Second, certain students will remain unresponsive to intervention; these students’ needs must be addressed through additional intervention work, including special education. Additionally, the characteristics of these students must be
studied further (Al Otaiba & Fuchs, 2002). Third, they have found that there are many inconsistencies in the RtI process, including inconsistencies in defining responsiveness and non-responsiveness and that this, too, must be researched further (Fuchs, Fuchs, & Compton, 2002).

**The work of Frank Vellutino and his colleagues**

Since the establishment of NCLB and IDEA, a multitude of studies on the effectiveness of RtI in preventing and addressing reading disabilities have been conducted by Frank Vellutino and his colleagues. Many of these studies and their findings are addressed here, followed by a discussion about the existing gaps in the research.

Frank Vellutino and his colleagues have conducted a number of different studies examining the effectiveness of Response to Intervention as a method for identifying students with specific learning disabilities (Vellutino et al., 1996, 2003, 2006). One of his more recent studies looked at the role of reading intervention in kindergarten and first grade on improving reading achievement scores, remedying reading difficulties, and identifying students in need of additional special education services (Vellutino et al., 2006).

In their article, Vellutino and colleagues discussed the findings of two intervention studies: one involving first grade, the other involving kindergarten. The first-grade study, initially reported in 1996, examined and followed literacy development in first grade students who had been identified as either struggling readers or normally achieving readers based upon initial kindergarten reading
assessments through fourth grade. In this report, the literacy skills as well as cognitive abilities of these students were assessed annually. Intervention was provided to struggling students in the form of one-on-one tutoring sessions for up to two school terms, depending on student need.

The results of this study revealed that the majority of reading difficulties were remedied after one session (school term) of intervention. At the start of the study, approximately 9% of the total population was deemed at-risk based upon initial assessments. After the initial session of intervention, only 1.5% of the student population was still considered to be at risk. Another interesting conclusion drawn by the researchers was that the students who were deemed most difficult to remediate (lowest response to intervention) were students who were initially deficient in emergent literacy skills, possibly reflecting lack of preschool education or poor early literacy instruction. Additionally, Vellutino and colleagues determined there to be no significant difference in intelligence between the students who were difficult to remediate and those who were easily remediated, nor was there a significant difference between at-risk readers and normal achieving readers.

The primary conclusion from this study was that the majority of reading difficulties seen in students can be successfully remediated through the implementation of early literacy intervention and that poor early instruction is more likely the cause of reading difficulties than cognitive impairment.
Vellutino was involved in another study examining the effects of early reading intervention on kindergarten students (Vellutino et al., 2003). In order to evaluate initial reading achievement, all students in the sample of 1,373 were given tests of letter-name fluency as they began kindergarten. This sample involved two similarly sized groups of students: one group of kindergartners and one group of first graders. At the beginning of kindergarten, approximately 30% of the students were considered at-risk for reading failure. Further assessments were given to these struggling students to evaluate the specific nature of their skill deficiencies.

Half of the at-risk kindergarteners were randomly assigned to a treatment group and the other half to a control group; this assignment allowed the researchers to compare the growth of students receiving early literacy interventions with those not receiving additional support. Student progress was monitored over the course of the year to measure growth and evaluate program effectiveness.

The results from this study indicated that early literacy intervention for at-risk students “can significantly improve the foundational literacy skills of such children and help prepare them for reading instruction in first grade” (Vellutino et al., 2003, p. 159).

A follow-up study was conducted the next year to examine the stability of the growth made by the kindergarten students in the previous years’ study. Initial assessment revealed that the kindergarten intervention successfully addressed and
remediated the reading difficulties experienced by struggling readers; this was demonstrated by the lower rates of at-risk readers in the same group of first grade students. The researchers then followed the progress of four primary groups of students: students who were at-risk in kindergarten but no longer needed intervention (no longer at-risk, or NLAR); students who were achieving normally and had an average IQ; children who were achieving normally with an above average IQ; and those who were still in need of literacy intervention. The final group was determined to be difficult to remediate due to lack of response to the kindergarten intervention.

Once again, results from this study supported the premise that early intervention has the potential to remediate reading difficulties. The researchers found that early and long-term reading difficulties can be detected and corrected as early as kindergarten with appropriate intervention. Occasionally, however, early literacy intervention is not sufficient for raising achievement in certain students; these students are considered to be difficult to remediate and need ongoing intervention and support.

The study also addressed the concept of identifying students with specific learning disabilities through the use of a Response to Intervention model. They found that there was a “gradation of risk for becoming reading disabled” depending on a number of environmental and innate factors and that for the most difficult to remediate children, cognitive deficits did play a role. The implication here is that these children are most likely to be the ones in need of special
educations services and that the RtI process can effectively differentiate between students at-risk for reading failure due to insufficient prior instruction and those who struggle as a result of specific learning disabilities.

**Meta-Analytic Review of RtI**

Conducted in 2004 and published in 2005, Matthew Burns, James Appleton, and Jonathan Stehouwer carried out a meta-analysis of research on the effectiveness of Response to Intervention. In conducting their analysis, they set out to answer the following three questions:

1. How effective are the large-scale RtI models currently in practice as compared to those developed by research?
2. Does RtI lead to improved systemic and student outcomes?
3. On average, what percentage of the student population was determined to have a disability under RtI?

The researchers began their analysis by conducting a database search on all articles examining all articles written on various RtI models prior to October of 2004 using the following terms: response (and responsiveness) to intervention; response (and responsiveness) to instruction; Heartland model; Heartland; intervention-based assessment; instructional support team; and Minneapolis Problem Solving Model (PSM). They narrowed their search using a number of specific criteria that directly addressed their research questions. The criteria for inclusion of an article were: the study implemented an intervention or systemic intervention with children having academic difficulties or identified as learning
disabled; the study provided measures of outcome for students or systems; the unit of analysis was either a school or individual students; the study used quantitative data that could be used to estimate effect sizes; and the study was written in English. They were then left with 21 articles.

To analyze the articles, the researchers categorized the studies as either being field-based (implemented in the schools) or university-based (implemented in a laboratory setting). Eleven of the studies were field-based and the remaining 10 took place in a university setting. Second, outcome measures for achievement were examined and categorized as student-based or school-based. Finally, data were aggregated and analyzed to determine estimated effect size of the RtI models. The resulting analysis was then used to answer the three research questions.

Researchers drew four main conclusions after analyzing the body of research on Response to Intervention. First, strong effects were found both in studies conducted in the field as well as in studies conducted in university settings. They found that the effects of the field-based studies were stronger than those of the university-based studies and hypothesized that the length of intervention implementation may have played a role. Second, they found that RtI did lead to significant improvements in student outcomes both in the field as well as at the university; this, they believed shows promise for the use of RtI in addressing student needs. Third, the analysis revealed that RtI models led to a decrease in the number of students labeled as having specific learning disabilities.
This implied that the RtI process was more successful than the IQ-achievement discrepancy in addressing student needs and differentiating between true learning disabilities and students who are responsive to intervention. Their final conclusion was that research in the field of RtI is severely lacking and much more needs to be conducted.

**Currently implemented RtI models**

As of 2008, Southeast Regional Education Laboratory (Sawyer, Holland, & Detgen, 2008) examined currently implemented large scale Response to Intervention models in six southern states. This study examined the state of large scale implementation of RtI in the schools; they did not set out to evaluate the efficacy of any of these models but rather sought to gage the progress made by schools and school districts toward implementing Response to Intervention. A number of interesting themes emerged from their study. First, they found that four of the six states (Florida, Georgia, Mississippi, and North Carolina) were implementing the problem solving approach as their RtI model with the goal of assessing student needs, identifying research-based interventions, and evaluating the effectiveness of the interventions on student achievement. Each of the states differed widely in terms of their implementation and approach. The study also revealed that a considerable amount of research is yet to be done on the practical aspects as well as the efficacy of Response to Intervention models.

Martinez, Nellis, and Prendergast (2006), in a report for the Center for Evaluation and Educational Policy, also examined currently implemented RtI
models. The study examined five large-scale implementations of RtI, the components of each model, and the realized outcomes for each. The models examined included the state of Minnesota (1992 – present); High Plaines Educational Cooperation in Kansas (initially implemented in the 1990s through today); Horry County Schools in South Carolina (2000 – present); the Grand Island Public Schools in Nebraska (2002 – present); Indiana University and Richmond Ben Blossom School Corporation (2004 – present). As can be seen from the dates of each model’s initial implementation, the majority of the RtI models are still young. Each of these models is discussed below.

The Minnesota state RtI model takes a Problem Solving approach to address the needs of struggling students and to identify students for special education services. This model, initially implemented in five schools in 1993, was eventually phased in across the entire state by 2002. Rather than labeling students as learning disabled or mildly mentally impaired, however, students deemed “non-responsive” are classified as being “students in need of alternative programming” or SNAPs. An outside review team was used to determine the outcomes of this model and found that: early interventions and referrals were more effective than in schools relying upon an IQ-discrepancy model; SNAPs were identified at a younger age at PSM schools than at schools relying on an IQ-discrepancy model; students who received interventions spent less time in special education classes than students from discrepancy model-based schools; and the
PSM was more effective in evaluating students of color than a school using a typical IQ-discrepancy model.

In order to fully educate the teachers and administrators in the Grand Island Public Schools, a team was formed to research and evaluate varying forms of RtI; after the initial review and research period, the district decided to implement a problem solving model in its schools. Because this model is still new, research on this RtI model revolved primarily around experiences in implementation, rather than on student outcomes. Findings from this research suggest that schools: start small by initiating implementation in only one grade level at a time; follow the chosen RtI model with fidelity; focus on student outcomes; use reliable progress monitoring on a regular basis; and use all available resources for intervention implementation. As of the 2006 report, quantitative outcome measures of student achievement were not yet available.

Another newly implemented RtI model is the Indiana University and Richmond Bean Blossom School Corporation, which began in 2004. This model grew out of the schools’ child study teams and is now called The Academic Well Check Program (AWCP). A three-tiered model was implemented, relying upon curriculum-based measures to assess academic progress of students. Students at risk of failure received additional research-based intervention in Tiers 2 and 3. Because this model was also new at the time of the study, no student outcome measures were available at the time of publication. However, as of 2006, more
than 2,600 students had been evaluated and approximately 305 students were
served in Tier 2 and 3 interventions.

Two other models were examined but outcomes for student achievement
have yet to be assessed. The High Plains Educational Cooperation in Kansas
relies upon school intervention teams (SIT) to follow a Problem Solving Model.
These teams determined interventions to be put into place for individual students
as well as special education placement. Decisions were made by these teams
using data from a variety of measures such as criterion-referenced tests, analysis
of work samples, curriculum-based measures of progress, and student
observations. Following a similar Problem Solving Model was the Horry County
Public School system in South Carolina. These schools used a student study team
(SST) to examine and evaluate student progress using curriculum-based measures.
The teams compared student achievement and growth to local norms and
determined interventions for students failing to make adequate progress. Students
who were not responsive to intensive intervention were referred for traditional
evaluation for special education classification.

The Gap

More studies of students’ responsiveness to intervention are available,
however the vast majority of these small-scale studies examine the effectiveness
of specific, single-tiered interventions within the larger scope of an RtI model;
they do not examine the efficacy of full models (Fuchs, Mock, Morgan, & Young,
2003). While these studies are extremely valuable in helping educators
understand which interventions are effective and provide support for the use of early intervention to remedy reading difficulties, they only address a small component of RtI implementation. In order to better understand the effectiveness of RtI in meeting the needs of every child, studies must be conducted that examine and evaluate the effectiveness of multi-tiered models that use a variety of interventions to meet the needs of all students (Fuchs, Mock, Morgan, & Young, 2003; Gresham, 2001; Kovaleski, 2003, December). From these studies, educators will better understand the effectiveness of entire Response to Intervention models as whole entities, rather than simply understanding the efficacy of the individual components. This will help teachers and administrators to ensure the success of each and every student.

Additionally, few studies explore and explain the experiences and practical matters involved in the design and implementation of RtI models (Sawyer, Holland & Detgen, 2008; Wright, 2007). More research is needed that explains the processes and procedures followed in designing and implementing a new RtI model in order to aid schools in overcoming difficulties in that process. Rather than having each school or district ‘reinvent the wheel,’ researchers must pass on the details, challenges, struggles, successes, and lessons learned by schools in the process of putting into practice a new model so that other schools and districts may do so more efficiently and effectively, thereby addressing the unique learning needs of all students in public schools.
This research study addresses the gaps in the literature in a number of ways. First, this study investigated and explored the experiences of the administrators, teachers, and specialists involved in the RtI model. This qualitative information illuminates the processes and procedures followed in designing the model; it highlights the challenges, successes, and lessons learned during the process; it reveals the experiences of individuals at all levels in the process (classroom teachers, intervention specialists, district-level administrators, and school-level administrators); and provides guidance for districts and schools facing similar challenges in implementing new RtI model. Second, the quantitative portion of this study evaluates the effectiveness of a new RtI model after its first year of implementation. This differs from much of the previous research in that this study examines the efficacy of the entire RtI model, including all three tiers of intervention as well as the systems and procedures implemented within the model for addressing the needs of students.
Chapter 3: Methodology

Many students are below benchmark or are not considered to be proficient readers across the county. A few statistics shed light on the staggering number of students at risk for academic failure:

- One in three students in fourth grade reads below proficiency (Wright, 2007)
- Approximately 5% of students in grades 9-12 leave school annually without graduating (Wright, 2007)
- 11% of youth between the ages of 16-24 dropped out of school according to the most recent national census (Wright, 2007)
- 10% of students in U.S. schools receive special education services (Vaughn & Fuchs, 2003)
- Half of students in special education are labeled as having a specific learning disability, which has more than doubled since 1980 (Vaughn & Fuchs, 2003).

Born from recent legislation enacted to change the manners in which students have previously been served, Response to Intervention (RtI) is at once a policy and practice for addressing the needs of students failing to make adequate progress in general education (Justice, 2006). An RtI model serves struggling students by relying upon frequent collection and examination of data to identify
students’ specific areas of concern and providing early intervention to prevent continued academic or behavioral failure. Data are also used to examine the effectiveness of general education, thus ensuring that lack of proper instruction is not cause for student failure and that all students receive the instruction and intervention they need (e.g., Fuchs, 2003; Fuchs, Fuchs, & Speece, 2002; Holdnack & Weiss, 2006; Kemp & Eaton, 2007; McCook, 2006; Wright, 2007).

Previous legislation led to prolonged student failure as intervention needs of many students were addressed because students did not meet the requirements for special education services. Fortunately, early intervention to address the needs of students at risk for academic failure is now mandated by the No Child Left Behind (NCLB) Act (Shaul & Ganson, 2005), making certain that students’ individual needs are being met by the school system. If these needs are not being met, the schools are required to reevaluate and remedy the situation. The RtI model uses quantitative data analysis techniques to determine the specific needs of the students and monitor their progress (Appelbaum, 2009; McCook, 2006; Wright, 2007). This ongoing assessment and reevaluation process allows schools to stay apprised of student learning; they can then determine how to better meet the needs of their students or decide if other evaluative measures, such as cognitive testing, are needed when progress is not being made.

Whereas intervention needs in the past were oftentimes based solely upon teacher recommendation, RtI uses quantitative measures to ensure that students most in need of intervention are identified and served. Frequently, multiple data
points are used, such as standardized tests including CSAP, PALS, MAP, CAT, ITBS, SAT, etc., as well as curriculum-based measures, standards attainments, and common formative assessments. This triangulation of data ensures that struggling students are identified early in their academic careers, thereby preventing prolonged academic failure through early intervention. By using quantitative measures to assess student needs early in the school year as well as through periodic evaluations, rather than relying solely upon teacher hunches, the needs of all students are attended to more quickly (Kemp & Eaton, 2008).

Because these procedures are new to schools and educators, research on the manners for designing and implementing a Response to Intervention model are scarce. The purpose of this study was therefore to illuminate the process of designing and implementing an RtI model as well as to evaluate the effectiveness of a Response to Intervention model in the raising achievement of students at risk of failure.

Research Questions

Qualitative research questions

The following research questions were used to guide and organize the collection of qualitative data:

1. How was the Response to Intervention model designed and implemented at the district level?
   • Who was involved?
   • What policies affected decision-making?
   • What research was examined to determine methodology?
• What types of decisions were made? (Top-down or bottom-up?)

• What does RtI look like in practice at the district level?

2. How was the Response to Intervention model designed and implemented at the school level?
   • Who was involved?
   • What policies affected decision-making?
   • What research was examined to determine methodology?
   • What types of decisions were made? (Top-down or bottom-up?)
   • What does RtI look like in practice at the school level?

3. What were the experiences of the district administrators, school administrators, classroom teachers, and specialist teachers while designing and implementing a Response to Intervention model?
   • How was instruction impacted by the implementation of the model?
   • What successes were experienced?
   • What difficulties or challenges were faced?
   • What lessons were learned during the design and implementation of the model?

Quantitative research questions

The following quantitative research question and sub-questions directed this study:

1. How effective is the Response to Intervention model in meeting the needs of struggling readers?
   • Does the RtI model raise achievement levels on the Colorado Student Assessment Program (CSAP) in reading
• Does the RtI model raise student achievement levels on the Measure of Academic Progress (MAP) assessment in reading and language at a greater rate for students receiving intervention than for students not receiving intervention?
• Does the RtI model raise student achievement levels on the Phonological Awareness Literacy Screening (PALS) assessment in phonemic awareness and language skills at a greater rate for students receiving intervention than for students not receiving intervention?
• Do gender, ethnicity, free/reduced lunch status, special education status, native language, or time within the intervention impact reading achievement growth?

Hypotheses

The following null hypotheses were used to organize analyses and to evaluate the effectiveness of the Response to Intervention model:

1. How effective is the Response to Intervention model in meeting the needs of struggling students in reading?
   • $H_0 =$ the RtI model does not significantly raise student achievement levels on the Colorado Student Assessment Program (CSAP) in reading at a greater rate for students receiving intervention than for students not receiving intervention.
   • $H_0 =$ the RtI model does not significantly raise student achievement levels on the Measure of Academic Progress (MAP) assessment in reading or language at a greater rate for students receiving intervention than for students not receiving intervention.
   • $H_0 =$ the RtI model does not significantly raise student achievement levels on the Phonological Awareness Literacy Screening (PALS) assessment in phonemic awareness and language skills at a greater rate for students not receiving intervention.
receiving intervention than for students not receiving intervention.

- \( H_0 = \text{Gender, ethnicity, free/reduced lunch status, special education status, native language, and time within intervention do not significantly affect reading achievement growth.} \)

**Methodology and Research Design**

Because of the newness as well as importance of Response to Intervention, research is needed to examine and evaluate the design and implementation of Response to Intervention in today’s schools (Gersten & Dimino, 2006). Quantitative data are needed to determine the effectiveness of the model, while qualitative information can shed light on the process of designing and implementing high quality programs. In order to fully understand both the process and outcome of RtI in meeting the needs of struggling readers, a mixed methods approach was used; quantitative data were analyzed to supplement and enhance the qualitative data collected in the study [QUAL(quan)]. According to Creswell and Plano Clark (2007), mixed methods research is important and valuable because it gives the researcher the ability to “situate numbers in the contexts and words of participants, and they can frame the words of participants with numbers, trends, and statistical results” (p. 13). This study took the form of a concurrent nested mixed methods design (Creswell, 2007) and included simultaneous collection of qualitative and quantitative data. The qualitative data were collected in the form of an intrinsic case study (Johnson & Christensen, 2004) for the purpose of illuminating the process of designing and implementing
the Response to Intervention model in a natural setting by examining the experiences of the teachers, specialists, and administrators involved. The quantitative data were primarily analyzed using a regression discontinuity design for the purpose of evaluating the effectiveness of the RtI model in raising the reading achievement scores of non-proficient readers at the elementary level in comparison to a group not eligible for the intervention; analysis of variance (ANOVA) and independent samples t-tests were also conducted to answer the final research question to determine if students from a variety of backgrounds (e.g., ethnic, language, socio-economic status, etc.) were differentially impacted by their participation in reading intervention groups.

**Population and Setting**

The school in which this research was conducted is located in a small urban district in the Rocky Mountain Region. The district consists of sixteen schools of varying sizes and grade structures (Table 1). The schools include one early learning center housing preschool through kindergarten classes; one preschool through sixth grade; three elementary schools serving grades K – six; five combined elementary and middle schools serving kindergarten through eighth grade; two schools serving kindergarten through 12th grade; one combined middle and high school housing grades seven through 12; and three high schools serving grades nine through 12. At the start of the 2009-2010 school year, an adult education school was also added serving students 18-20 years of age.
The population of the students in the district is diverse and includes children from a variety of ethnic backgrounds, socio-economic statuses, and language backgrounds. According to the Colorado Department of Education’s October Count from 2008, there were 5,796 students enrolled in the district, 51% of whom were male, 49% of whom were female. Upon initiation of this study, the district comprised 64% Hispanic/Non-White students, 31% Caucasian students, 3% Asian students, 2% Black students, and 1% Native American students. Approximately 65% of the students in the district qualified for free or reduced lunch programs; 9% of the students received special education support, and 42% of the students in the district were second language speakers (most of whom were native Spanish speakers) and 2% of students in the district received gifted and talented services. Approximately 3% of students enrolled in the district were homeless.
Table 1

*Summerset Public Schools* (2008-2009)

<table>
<thead>
<tr>
<th>School Structure</th>
<th>Grades</th>
<th>Number of Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Learning Center</td>
<td>Preschool – Kindergarten</td>
<td>1</td>
</tr>
<tr>
<td>Early Learning/Elementary School</td>
<td>Preschool – 6th grade</td>
<td>1</td>
</tr>
<tr>
<td>Elementary School</td>
<td>Kindergarten – 6th Grade</td>
<td>3</td>
</tr>
<tr>
<td>Elementary/Middle School</td>
<td>Kindergarten – 8th Grade</td>
<td>5</td>
</tr>
<tr>
<td>Elementary/Middle/High School</td>
<td>Kindergarten – 12th Grade</td>
<td>2</td>
</tr>
<tr>
<td>Middle/High School</td>
<td>7th – 12th Grade</td>
<td>1</td>
</tr>
<tr>
<td>High School</td>
<td>9th – 12th Grade</td>
<td>3</td>
</tr>
</tbody>
</table>

*Following this study during the 2009-2010 school year, an adult education school was added for adults ages 18-20.*

The elementary school in which this study took place had 328 students enrolled as of the Colorado Department of Education’s October 2008 count, 56% of whom were male and 44% were female. The population of the school comprised 52% Caucasian students, 45% Hispanic/Non-White students, less than 1% each of Asian, Black, and Native American students. Approximately 56% of the students at the school qualified to receive free or reduced lunch, 9% of students received special education support, less than 1% of students received gifted and talented services, and 18% of the students enrolled were second language speakers. Less than 1% of students at the school were homeless. Table 2 displays the demographic information about the population of the school as well as school district
The elementary school, which will be referred to as Foothill Elementary School, employed fifteen full-time teachers, two part-time teachers, four paraprofessionals, three school support staff, two office secretaries, and one administrator. For the 2007 – 2008 school year, the Colorado Department of Education gave the school a “Low” rating on overall academic performance on the Colorado Student Assessment Program (CSAP); the academic growth of the student population was rated “Typical.” In the spring of 2007, 22.4% of the students in the school were proficient or advanced for all content areas; this compared to 39.2% of the students in the district and 61.7% of students in the state. In the spring of 2008, 31.9% of the students at the school were proficient or advanced on the CSAP, as compared to 35.5% of students in the district and 62.2% of students in Colorado.
### Table 2

**Population of Summerset Public Schools and Foothill Elementary School**

<table>
<thead>
<tr>
<th>Element of Population</th>
<th>Summerset Public Schools</th>
<th>Foothill Elementary School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Students</td>
<td>5796</td>
<td>328</td>
</tr>
<tr>
<td>Hispanic – Non-White</td>
<td>3687 64%</td>
<td>147 45%</td>
</tr>
<tr>
<td>Caucasian</td>
<td>1769 31%</td>
<td>172 52%</td>
</tr>
<tr>
<td>Native American</td>
<td>67 1%</td>
<td>&lt;14 &lt;1%</td>
</tr>
<tr>
<td>Black</td>
<td>100 2%</td>
<td>&lt;14 &lt;1%</td>
</tr>
<tr>
<td>Asian</td>
<td>173 3%</td>
<td>&lt;14 &lt;1%</td>
</tr>
<tr>
<td>Free/Reduced Lunch</td>
<td>3774 65%</td>
<td>185 56%</td>
</tr>
<tr>
<td>Second Language Speaker</td>
<td>2419 42%</td>
<td>59 18%</td>
</tr>
<tr>
<td>Special Education</td>
<td>543 9%</td>
<td>29 9%</td>
</tr>
<tr>
<td>Gifted and Talented</td>
<td>123 2%</td>
<td>&lt;14 &lt;1%</td>
</tr>
<tr>
<td>Homeless</td>
<td>160 3%</td>
<td>&lt;14 &lt;1%</td>
</tr>
<tr>
<td>Male</td>
<td>2982 51%</td>
<td>184 56%</td>
</tr>
<tr>
<td>Female</td>
<td>2814 49%</td>
<td>144 44%</td>
</tr>
</tbody>
</table>

The Colorado Department of Education (CDE) also reported achievement data for students in the school in reading, writing, and math, broken down by ethnicity, socio-economic status, disability status, and language background (Table 3). For the 2007-2008 school year, 39% of the total school population was proficient or advanced in reading; 40% of economically disadvantaged students, 26% of English Language Learners (ELL), and none of the students with disabilities were proficient or advanced on the CSAP. Fifty-one percent of White students and 31% of Hispanic students met or exceeded proficiency requirements.
in reading. (Black, Asian, and American Indian data were not included due to the lack of representation at the school.)

Writing proficiency scores were similar to, but lower than those for reading. As of the 2007-2008 school year, 23% of the school population was proficient or advanced in writing; broken down by subgroup, 21% of economically disadvantaged, 14% of English Language Learners (ELL), and 0% of students with disabilities were proficient or advanced on the CSAP. Thirty-two percent of White students were proficient or advanced and 15% of Hispanic students were proficient or advanced on the state assessment.

The math proficiency scores tended to be higher than those of either reading or writing during the 2007 – 2008 school year. As a school, 40% of students were proficient or advanced on the mathematics assessment; 41% of economically disadvantaged students, 38% of English Language Learners (ELL), and 0% of students with disabilities were proficient or advanced. Forty-nine percent of White students and 34% of Hispanic students were at or above proficiency in mathematics.
Table 3

School CSAP Data for 2008

<table>
<thead>
<tr>
<th>Category of Students</th>
<th>Percent Proficient or Advanced in Reading</th>
<th>Percent Proficient or Advanced in Writing</th>
<th>Percent Proficient or Advanced in Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>39</td>
<td>23</td>
<td>40</td>
</tr>
<tr>
<td>Eligible for Free/Reduced Lunch</td>
<td>40</td>
<td>21</td>
<td>41</td>
</tr>
<tr>
<td>English Language Learners</td>
<td>26</td>
<td>14</td>
<td>38</td>
</tr>
<tr>
<td>Students With Disabilities</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>White</td>
<td>51</td>
<td>32</td>
<td>49</td>
</tr>
<tr>
<td>Hispanic</td>
<td>31</td>
<td>15</td>
<td>34</td>
</tr>
<tr>
<td>Black</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Asian</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>American Indian</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

* Indicates any group with less than 16 student results to be reported

Qualitative Data Collection and Analysis

Design: The Intrinsic Case Study

Cresswell (2007) describes a case study as:

the study of an issue explored through one or more cases 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 bound themes. (p. 73, italics in original)
This type of research is frequently used in medicine and health, law, education, political science, and the social sciences (Creswell, 2007). A case study is used to provide a detailed account of a case as well as comprehensive and thorough description of the unique characteristics and emerging themes of the case (Johnson & Christensen, 2004).

An intrinsic case study is a study in which the researcher’s goal is to understand the inner workings and nuances of the case in great and meaningful detail (Creswell, 2007; Johnson & Christensen, 2004; Yin, 1981). According to Johnson and Christensen (2004), intrinsic case studies are very popular in education as well as with “program evaluators, whose goal is to describe a program and to evaluate how effectively the program is operating” (p. 337).

This intrinsic case study was conducted with the goal of providing informative, explanatory, in-depth information about the experiences of the participants to shed light on the process of developing and implementing an effective Response to Intervention model. Although the ability to generalize the findings of an intrinsic case study is limited (Johnson & Christensen, 2004), the conclusions provide other educators and administrators with advice and suggestions to create and implement a new Response to Intervention model.

**Sampling**

To adequately and comprehensively describe and interpret the experiences of the teachers and administrators involved in the Response to Intervention implementation, it was necessary to speak to multiple participants. At the school,
six teachers (including the researcher) designed and implemented the new RtI model, overseen by one school-level administrator (director). Because of the small pool of participants from which the sample was drawn, all seven of these individuals were approached for interviews; three individuals (two specialists and the school director) agreed and were interviewed. In order to paint a complete picture of the design and implementation process, it was also necessary to interview the general education classroom teachers from whose classrooms students were pulled for intervention. Five classroom teachers, including one classroom teacher/Response to Intervention Problem Solving Team leader, were interviewed to describe and give details of the implementation process, how it impacted classroom instruction, and provided insight into the successes and challenges faced while implementing the model.

Three central administration employees worked directly on the design and implementation of RtI: two of the district-level administrators had the same job description and title (Response to Intervention Coordinator), but worked with different schools over the course of the school year, and a third administrator oversaw the development of the model (the district Director of Student Services). Two out of three of these individuals were interviewed: one of the Response to Intervention Coordinators who worked directly with Foothill Elementary School, as well as the district Director of Student Services. The 10 participants in this case study therefore included district-level administrators, a school-level
administrator, classroom teachers, and specialist teachers. The names (pseudonyms) and job titles are provided in Table 4 below.

**Table 4**

*Participants and Job Titles*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Job Title/Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kathy Davis</td>
<td>District Level Response to Intervention Coordinator</td>
</tr>
<tr>
<td>Ben Hamilton</td>
<td>District Level Director of Student Services</td>
</tr>
<tr>
<td>Adam Wright</td>
<td>School Director (principal)</td>
</tr>
<tr>
<td>Amy Wheat</td>
<td>Second grade classroom teacher</td>
</tr>
<tr>
<td>Christine Johnson</td>
<td>Second grade classroom teacher</td>
</tr>
<tr>
<td>Jennifer Austin</td>
<td>Third grade classroom teacher</td>
</tr>
<tr>
<td>Ashley Berger</td>
<td>Fourth grade classroom teacher</td>
</tr>
<tr>
<td>Jessica Thompson</td>
<td>Literacy Intervention Specialist Intervention Leadership Team member</td>
</tr>
<tr>
<td>Susan Hundley</td>
<td>School Psychologist Child Study Team Facilitator</td>
</tr>
<tr>
<td>Laura Rossi</td>
<td>Kindergarten classroom teacher Problem Solving Team Facilitator</td>
</tr>
</tbody>
</table>

**Data collection and analysis**

**Interviews**

Semi-structured interviews were conducted to gather information about each of the participants’ experiences during the first year of Response to Intervention implementation (Creswell, 2007); these interviews, lasting 45 minutes to two hours, were recorded and transcribed for analysis. Interview questions were tailored to address issues pertinent to the different subgroups of
participants. Questions for the classroom teachers (see Appendix 3), specialist teachers (see Appendix 4) and school administrator (see Appendix 1) focused on their experiences in designing and implementing the Response to Intervention model as well as their understanding of the model and how it worked within the school. Topics such as successes and difficulties, goals, challenges, resources used and resources needed, understanding of the process of the model, recommendations for further improvement in implementation, and overall experiences with the model were addressed. Interviews with school-level participants specifically addressed the impact of the Response to Intervention on classroom instruction and student achievement; by using an open-ended interview, participants were able to explain their understanding of Response to Intervention, how the model looked and worked in practice, and were also able to express concerns, describe successes and challenges, and make suggestions for future improvement (see Appendix 4). Interviews with the central administration team focused on the design and implementation of the model at the district level as well as individual school-level (see Appendix 1). Topics included procedures and policies followed; motivation for implementation; procedures created and constructed by the district-level team for implementation; resources used and resources needed; challenges faced and successes experienced during design and implementation; research used to guide practices; how the model worked in action; and goals for long-term implementation.
Because of my position as an insider at the school and within the district, the implications of this conflict of interest were addressed in each of the interviews. All participants were informed that the study had been approved by the University of Denver’s Institutional Review Board as well as by district review personnel. I explained the future use of this information and assured them that there was no component of evaluation either by the researcher or by anyone reading the report. Teachers were made aware that the school administrator did not use the information gleaned from interviews as an evaluative measure; all interview and observational data was kept confidential and the school administrator was not apprised of any individual comments, opinions, or attitudes. All names were kept confidential through the entire process as well as in the final report.

The interview protocols (see Appendices 1-4) provided a basic structure to the interview as well as a place for note taking (Creswell, 2007). The protocols included space to record participant information, initial open-ended questions asked during the interview, space for notes on participant responses to the questions, and an area for further comments made by the participant.

**Documents and Materials**

Documents and materials were collected to provide supplemental information on policies and procedures guiding the development and implementation of the Response to Intervention model as well as to provide a comprehensive picture of what the RtI model looked like in practice. The
documents came primarily from the district office and aided in explaining the procedures followed in designing and implementing the district-wide and site-specific Response to Intervention model. District-level documents included parent and community communication forms and flyers, student progress documentation forms, planning forms, and data analysis worksheets. Additional site-specific documents came from the school; these included end of year surveys given to staff, student progress documentation forms, parent and community communication information, and data worksheets.

**Instrumentation**

Specific interview protocols (Appendices 1 – 4) were used by the researcher to facilitate and organize the interview procedure and to ensure proper documentation of data. The interview protocols were created by the researcher and included demographic information such as job title and responsibilities; previous positions, responsibilities, and time at each; educational background; and additional demographic information such as age and ethnicity. The questions asked in each of the interviews addressed the specific qualitative research questions. In order to evaluate their quality, the protocols were reviewed by peers through the use of cognitive interviews (Willis, 2005). These cognitive interviews helped the researcher ensure that the questions were clear and comprehensible to the interviewees and made certain that the protocols addressed the research questions adequately (Willis, 2005).
**Data analysis**

Creswell’s (2007) structure for data analysis and representation guided my approach to examining, organizing, and reporting the findings of the interviews, documents and materials. Creswell (2007) describes qualitative data collection, analysis, and report writing as steps that are not separate, but are interrelated, simultaneous, and cyclical, as opposed to linear and unidirectional. He represents this iterative process using a data analysis spiral that begins with data collection, followed by data managing (organization), reading and memo writing, describing, classifying, and interpreting the data, and representing the data visually and through text (Creswell, 2007).

As discussed above, the qualitative data included interviews and documents and materials. The interviews were recorded using a digital recording device. Following each interview, the recordings were transcribed into word documents. A copy of the transcript was emailed directly to the interview participant for review. Each participant was given the opportunity to add to, change, or clarify his/her answers to the interview questions in order to ensure that he/she felt the answers were complete.

I read through all interviews, documents and materials and made notes in the margins to inform initial coding of emerging categories of data and themes. This initial coding consisted of both preconfigured codes and emergent codes. The prefigured codes were based upon topics directly addressed in the interviews and initial research questions; codes included topics such as “challenges,”
“successes,” “structures,” “goals,” and “areas in need of improvement.” Additionally, new codes and categories emerged from the interviews based upon participant experience and emphasis; these codes included “importance of data,” “staff buy-in (commitment),” “schedule,” “communication,” and “double dose”; the significance of these terms will be discussed in the qualitative findings chapter (Chapter 4). Data were then divided into primary categories based upon patterns of topics and themes that emerged as fundamental issues, as well as subcategories and themes falling under the scope of the larger topics. Direct interpretation of these themes formed the basis of the discussion of the data. Analysis of the documents and materials helped clarify and enhance these interpretations and lend support to conclusions.

Naturalistic themes were developed; these themes formed the foundation for recommendations for successful implementation of a Response to Intervention model in the future, both for this school as well as others. The final report included both written text as well as graphic representations of the interpretations and conclusions drawn.

**Credibility and Trustworthiness**

According to Egon Guba (1981), trustworthiness in naturalistic research can be established by addressing four major components of a study: credibility, transferability, dependability, and confirmability.

Geoffrey Mills (2007) defines credibility as “the researcher’s ability to take into account the complexities that present themselves in a study and to deal
with patterns that are not easily explained” (p. 84). Guba (1981) asserted that a study can gain credibility if certain measures are taken during data collection and analysis that ensure the data are comprehensive and accurate. These measures include prolonged engagement at the site, persistent observations of the site and participants, peer debriefing, triangulation, document and material collection and analysis, member checking, structural coherence, and referential adequacy.

In order to paint a complete and thorough picture of the research site, participants, and case, a considerable amount of time was spent at the school and with the participants. Because of my insider, complete participant status at the school, few problems of access occurred and ample amounts of time were spent observing, interviewing, and documenting the implementation of the investigation. This prolonged participation as well as persistent observation helped to ensure credibility of the data collected for two primary reasons. First of all, the sheer amount of data collected and time spent at the school allowed for a full and complete picture of the case to be drawn. Secondly, by spending a large amount of time in the school, a wide spectrum of situations and circumstances were observed, giving a more complete and accurate representation of the case.

Peer debriefing occurred frequently throughout the data collection and analysis period. I worked with a group of other doctoral students to review ideas, challenge beliefs, and evaluate work and progress. We met frequently and spent the time together reviewing one another’s work; this process continued throughout the data collection and analysis so that I had a number of critical
friends who were able to play the part of the “devil’s advocate” (Creswell, 2007). During the collection and interpretation phases of my research, these peers read the transcripts of my interviews and described their interpretations; we compared their interpretations with mine to ensure the accuracy of my interpretations of the data. This helped me to attend to my own biases in the collection and interpretation of results and also served to make sure that no stone was left unturned while collecting data. My peers also read and commented upon my qualitative findings chapter to ensure that my writing reflected the conclusions we drew from the data.

By observing and interviewing multiple participants, all of whom were involved with the design and implementation of the intervention model in different manners, I was able to triangulate the data collected and ensure that all angles were addressed. Multiple data points also provided a variety of opinions and perspectives on the implementation process and its successes and failures; these data were used to uncover emerging themes in the data as well as demonstrate whether opinions and experiences of the process and procedures were common to all participants or were held by only the minority.

In qualitative research, triangulation is valuable because a single data point is sufficient to shed ample light on an area of focus (Mills, 2007). According to Creswell (2007), in triangulation, “researchers make use of multiple and different sources, methods, investigators, and theories to provide corroborative evidence” (p. 208). In order to fully answer the qualitative
questions posed in this research, a variety of data sources were used; as suggested by Guba (1981), document and materials analysis were also included. The triangulation matrix in Figure 5 organizes the data sources by question and documents the variety of sources used.

Lincoln and Guba (1985) assert that member checking “is the most critical technique for establishing credibility” in a qualitative study (cited in Creswell, 2007). In order to ensure that the data collected and interpretations made from these data accurately represented the feelings, experiences, and opinions of the participants, each of the participants was given the opportunity to review, discuss, comment upon, and help to revise the data. Participants received transcripts of their interviews and were given multiple opportunities to provide clarification of their responses; additionally, multiple participants were provided with the qualitative findings chapter (Chapter 4) and were given the opportunity to provide feedback on interpretations discussed in the chapter. I met individually with each of the participants who were interested in providing feedback and made changes to the chapter as they deemed necessary. By allowing the participants to review their contributions at a variety of stages in the collection and interpretation phases prior to publication, participants were able to clarify any misunderstandings or misrepresentations in the data. This promoted greater clarity and accuracy of the data and ensured that the report was credible and trustworthy.

The second criterion suggested by Egon Guba (1981) for establishing the generalizability of a qualitative study is transferability. Transferability refers to
the researcher’s belief that his or her research and data are context-bound and that
the goal of the research is to create a complete picture of the case with less of an
emphasis placed upon developing “truths” that can be generalized to other cases
and settings. Guba (1981) suggests two strategies to address transferability in
qualitative data: detailed descriptive data and detailed descriptions of the context
or setting. By including detailed descriptive data as well as detailed descriptions
of the context of the study, the researcher is able to provide enough information
for readers to determine how similar the setting of the research is to their own
settings. Having this information allows the reader to determine whether or not
the findings are transferable. This study includes ample amounts of descriptive
data about the participants, setting, and context. These descriptive data include all
relevant demographic information about the participants, as well as the larger
populations of the school and district. This information has been provided in
order to aid readers in determining whether or not the findings of this study are
transferable to other settings. Descriptive data of the school and district are
provided, including information such as district size and approximate location,
school size and approximate location, district and school demographic
information, district and school achievement data, and RtI program information
(e.g., number of students pulled per group, intervention duration, number of days
of intervention per week, etc.). While ample description is provided, the
confidentiality of the participants, school, and district has been maintained.
The dependability of a study refers to the stability of the data. Guba (1981) recommends following two steps to address the dependability of qualitative data: overlapping methods of data collection and establishing an “audit trail.” Using overlapping methods of data collection is similar to the triangulation process in that the researcher is using two or more methods for collecting data so that the weaknesses of one method are compensated for by the strengths of the other. For example, while interviews helped to illuminate the process of designing and implementing a new RtI model in an elementary school, information provided by the documents and materials outlining and explaining these processes filled in any gaps or holes in the data left after the interviews.
Table 5

*Triangulation Matrix for Data Collection*

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>How was the RtI model developed and implemented at the district level?</td>
<td>1 Interviews with district personnel</td>
</tr>
<tr>
<td>How was the RtI model developed and implemented at the school level?</td>
<td>1 Interviews with school personnel (teachers, administrator)</td>
</tr>
<tr>
<td>What were the experiences of the school administrator, classroom teachers, specialist teachers, and students in regards to the RtI process and model?</td>
<td>1 Interviews with classroom teachers, intervention teachers, and administrators</td>
</tr>
</tbody>
</table>

Furthermore, not only were multiple forms of qualitative data collected (e.g., interviews, mapping, and document and materials analysis) but a mixed methods approach was taken in which both qualitative as well as quantitative data were collected. Johnson and Christensen (2004), Onwuegbuzie and Da Ros Voseles (2001), and Guba (1981) suggest that using quantitative data to support and expand upon qualitative data (or vice versa) “can answer a broader range of research questions, can provide stronger evidence for a conclusion through
convergence and corroboration of findings, can add insights and understandings that might be missed when only a single method is used, can be used to increase the generalizability of the results, and produces more complete knowledge necessary to inform theory and practice” (Johnson & Christensen, 2004, p. 414).

Guba (1981) suggests establishing an “audit trail” through careful and meticulous documentation of data collection and analysis. By establishing and maintaining a thorough audit trail, outside auditors, such as peers or critical friends were able to examine and evaluate the data collection, analysis, and interpretation phases of this research and could corroborate or challenge the research conclusions at any point. In this study, the audit trail consisted of auditory recordings followed by transcriptions of interviews, following of formal protocols for observations and interviews (see Appendices 1-4) the inclusion of original documents and materials, comprehensive original field notes, and any archival data that surfaced throughout the research process. An external audit to ensure that accurate inferences and conclusions were drawn from the data was conducted in the form of peer reviews by critical friends and readers as well as member checking with participants.

Guba’s final criteria for establishing the validity of a qualitative study is confirmability (1981). Confirmability refers to the neutrality and objectivity of the data collected and is addressed by practicing triangulation and reflexivity (Mills, 2007). As discussed above, triangulation of data occurred both in terms of types of data collected as well as the sources from which data were collected.
Mills (2007) explains that reflexivity is when the researcher “intentionally reveals underlying assumptions or biases that cause the researcher to formulate a set of questions in a particular way and to present findings in a particular way” (pp. 86 – 87) and suggest that journaling and openly recording and discussing biases, assumptions, reflections, and ruminations to clearly see how these thoughts may impact research procedures and data analysis. To make transparent my own thoughts and preconceptions, my positionality and biases are addressed and discussed in detail below. In addition, my reflections were recorded on an ongoing basis in my own research journal. This journal was available for my peers and critical friends should they question my interpretations, motivations, or agenda.

**Quantitative Data Analysis**

**Regression Discontinuity Analysis**

The primary inferential statistical analysis used to analyze the quantitative data in this dissertation was a regression discontinuity analysis. The data analyzed were collected by the school Intervention Leadership Team (including the researcher) over the course of the 2008-2009 school year. Additionally, analysis of variance (ANOVA) and independent samples t-tests were used to examine the impact of gender, ethnicity, free/reduced lunch status, native language, special education status, and gifted and talented status on student growth in reading. The quantitative data were used to evaluate the effectiveness
of the Response to Intervention model in its first year of implementation in raising achievement scores of students in grades 1 – 6.

According to Gersten and Dimino (2006), a regression discontinuity design is ideal for examining and evaluating the effectiveness of the RtI approach in addressing reading problems and learning disability (LD) identification. Johnson and Christensen (2004) add that, “regression discontinuity is an excellent design that can be used when researchers want to investigate the efficacy of some program or treatment but cannot randomly assign participants to comparison groups” (p. 311). Vaughn, Wanzek, Murray, Scammacca, Linan-Thompson, and Woodruff (2009) also demonstrate the value of a regression discontinuity design in evaluating the effectiveness of Response to Intervention implementation in their own research.

Regression discontinuity is used to determine whether or not individuals meeting predetermined criteria (such as academic test scores) benefit from receiving a special treatment or intervention in comparison to a group not receiving the intervention (Johnson & Christensen, 2004). In the regression discontinuity design, individuals are assigned to a treatment/intervention group based upon predetermined selection criteria: individuals on one side of the cut-off point receive the treatment or intervention, whereas individuals on the other side of the cut-off point do not (Visser & De Leeuw, 1984). As discussed by Visser and De Leeuw (1984), Shadish, Cook and Campbell (2002), and Gersten and Dimino (2006), educators can use regression discontinuity analyses to determine
if an educational intervention, such as Response to Intervention reading groups, is effective in increasing student achievement.

Shadish, Cook, and Campbell (2002), Johnson and Christensen (2004), and Vaughn et al (2009) explain that, though the regression discontinuity design is quasi-experimental in nature, “it is virtually as rigorous as randomized controlled trials for addressing the effectiveness of interventions” (Gersten & Dimino, 2006). Shadish, Cook, and Campbell also contend that the regression discontinuity design does not suffer from the same threats to internal validity or problems faced by other non-experimental and quasi-experimental designs as a result of the nature of the design. First, students in the treatment group come from the larger target population under study, as well as the same setting as the target population. Second, according to Shadish et al. (2002), the selection process is “fully specified.” As discussed by Gersten and Dimino (2006), when the selection process is completely transparent, the experimenter does not face the same issues as brought about by quasi-experimental research in that he or she can be sure that the initial placement into treatment or control group is based solely upon the assignment variable rather than upon other extraneous variables that may in one way or another affect selection and therefore outcomes. Visser and De Leeuw (1984) add that “the logic of the design is based on the argument that, under certain circumstances, experiments with selected groups may lead to valid conclusions if the selection mechanism is perfectly known” (p. 45). The design, therefore, is approximately as rigorous as an experimental design using random
assignment and allows the researcher to make inferences about causal relationships between variables when assumptions are met (Shadish, Cook, & Campbell, 2002; Visser & De Leeuw, 1984).

The regression discontinuity design has been used by a number of researchers for the purpose of evaluating the effectiveness of a variety of programs. For example, Bryant, Bryant, Gersten, Scammacca, and Chavez (2008) used the model to evaluate the effects of intervention on raising achievement in math for first and second graders. Leake and Lesik (2007) used the regression discontinuity design to assess the efficacy of a remedial English course on the cumulative GPA of college students. According to Bryant et al. (2008), Leake and Lesik (2007), Shadish et al. (2002), Thistlethwaite and Campbell (1960), and Trochim (1984), the regression discontinuity design is ideal for evaluating program effectiveness when random assignment is not possible or ethical. Most recently, Vaughn et al. (2009) used a regression discontinuity analysis to evaluate the effectiveness of a reading intervention program in raising reading achievement in elementary school students.

The model for the design is as follows: (Table 6, modified from Johnson and Cristensen, 2004)
Table 6

*Quantitative Research Methodology Design*

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest</th>
<th>Pre-assignment Cut-off criteria</th>
<th>Treatment</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>$O_{pre}$</td>
<td>&lt;C</td>
<td>X</td>
<td>$O_{post}$</td>
</tr>
<tr>
<td>Control</td>
<td>$O_{pre}$</td>
<td>&gt;C</td>
<td></td>
<td>$O_{post}$</td>
</tr>
</tbody>
</table>

*Requirements of Regression Discontinuity Design*

There are six major requirements of the regression discontinuity design (Johnson & Christensen 2004; Shadish, Cook, & Campbell 2002). First, assignment to groups must be based upon a cut-off score on a quantitative measure. In this experiment, depending on the grade level of the student, participants were assigned to the treatment group based upon three possible quantitative measures of reading achievement and proficiency; the measures included the Colorado Student Assessment Program (CSAP), The NWEA Measure of Academic Progress (MAP), and The Phonological Awareness Literacy Screen (PALS).

Second, the quantitative assignment variable must be at least ordinal in nature. The assessment measures used to determine placement in this experiment all used interval data, thereby satisfying this requirement. Third, cut-off for treatment is ideally at the mean point in the regression line; though this is not mandatory, power suffers if extreme cut-off scores are used. Unfortunately, the cut-off point for receiving the intervention in this case was not at the mean of...
measurement scores; due to lack of resources and teachers, it was not possible to provide the intervention to half of the students in the school. In this experiment, the cut-off point was closer to the 15th percentile than 50th.

The fourth requirement is that assignment to groups must be under the control of the experimenter. Though the cut-off point is not at the mean of the measurement scores, assignment to groups was determined by and under the control of the school Intervention Leadership Team (ILT), which included the researcher.

Fifth, the relationship between the assignment and the outcome variables must be known; for example, it must be known if the relationship is linear or curvilinear. Because the same measures for achievement were used as a pretest and posttest, the relationship between the assignment and outcome variables is linear. This relationship was confirmed quantitatively during data analysis.

Finally, all participants in the experiment must be from the same population. Intervention groups receiving the treatment were pulled from the larger population of the school based solely upon reading proficiency scores, therefore participants in the intervention and comparison groups were from the same population: Foothill Elementary School. Demographic data from the treatment and control groups were analyzed and confirmed that the treatment group was a representative sample of the larger school population on measures aside from assignment measure and achievement; however, two exceptions occurred: gifted and talented students and students qualifying for special
education services were not equally represented in the treatment and comparison groups.

**Major threats to Regression Discontinuity Design**

Shadish, Cook, and Campbell (2002) address the major threats to the validity of the regression discontinuity design; a threat, they say, would be some variable (other than the independent variable) that would cause a sudden discontinuity in the regression line occurring at the exact same point as the cut-off score for treatment.

Typical threats to internal validity include ambiguous temporal precedence, selection, history, testing, maturation, attrition, regression, testing, instrumentation, and interaction effects. According to Shadish et al. (2002), threats resulting from selection and maturation are uncommon, whereas history and instrumentation are more likely to occur.

Ambiguous temporal precedence was not a threat to validity in this experiment. Pretests were given prior to all interventions/treatments and the data from these pretests were used to assign participants to either the treatment or comparison group. The intervention was then administered to the treatment group only, while the comparison group received reading instruction within the mainstream classroom. Finally, the posttests were given to assess growth.

Selection bias did not affect the results of this experiment because the methods for selecting participants for the treatment group were transparent and fully known (Shadish, Cook, & Campbell, 2002). Participants were placed in the
treatment/intervention group based solely upon predetermined cut-off scores; assuming these cut-off scores were accurately measured, selection bias did not occur. Demographic data were analyzed to determine whether or not the treatment group represented the larger target population on variables such as ethnicity, income (free and reduced lunch status), gender, etc. As mentioned above and discussed in Chapter 5, two groups were not equally represented in the treatment and comparison groups: the treatment group included all special education students in the school and the control group included all gifted and talented students in the school. Also, in order to meet the requirements of the regression discontinuity design, data from students that did not strictly adhere to the cut-off criteria were excluded from the analysis.

Effects of testing did not one group more so than the other because all participants in the treatment as well as control groups were given the same measures at the same time; neither group had an advantage over the other in terms of their exposure to, or knowledge of, the assessment in a way that could have altered their performance. Instrumentation was not a threat to internal validity because students in both treatment and control groups were given the same assessments, at the same time, and in the same setting; the groups were mixed and given the CSAP, MAP, and PALS assessment together in the mainstream classroom. The only students who received any of the assessments in a different setting were those receiving special education modifications and accommodations that are required by law, as stated in their 504, IEP, or ILP.
According to Johnson and Christensen (2004), a maturation-related threat “refers to physical or mental changes that may occur within individuals over time, such as aging, learning, boredom, hunger or fatigue” (p. 236) that would affect the treatment and comparison groups differently. While maturation will naturally occur over the course of the school year for all children, it should not have posed a threat to the outcome of this study. Shadish, Cook, and Campbell (2002) assert that maturation threats can be reduced by making sure that all participants are approximately the same age and from the same local population; by using a sub-sample of the larger school population for the treatment group, this precautionary measure was taken. Additionally, a regression discontinuity design hinges in part on the assumption that, when all participants in a study are drawn from the same larger pool, placement in the treatment group versus comparison group is based solely on a cut-off score of a quantitative measure and participants in the two groups should therefore be the same in all other respects. Because of the inherent design of the regression discontinuity design and the assumptions of it, Shadish, Cook, and Campbell (2002) assert that maturation does not pose a threat to the validity of the data or conclusions drawn from the data.

History may have threatened the validity of the experiment if events happened to one group (as determined by the cut-off score) and not to the other (Shadish, Cook, & Campbell, 2002). While the treatment/intervention itself is directly intended to have an effect on the outcome and is intentionally given to only one group, other extraneous factors may have come into play that also
affected the final measures of achievement. For example, the intervention group may have received more direct instruction on test taking skills in a small group setting than the other group; students pulled from their mainstream classrooms to participate in the treatment/intervention, may have missed out on instruction that could have potentially helped them make further gains on the final assessment. In the case of history, however, it is difficult to draw the line between the intended intervention and incidental instruction that may alter later achievement or performance; because it is the concept of the intervention itself that is being examined, it should be expected that students in the treatment group received additional direct instruction that was intended to help them improve on the final measure.

If there were systematic difference in drop-out rates between the treatment/intervention group and the control group, attrition may have threatened the internal validity of the experiment as well. Attrition rates were documented for both groups and analyzed along with the other quantitative data following the data collection phase of the research.

In a regression discontinuity design, many of the threats to validity can be systematically assessed to determine the impact of these threats on the estimated treatment effect (Leake & Lesik, 2007). For example, the effect of attrition was controlled for in analysis by running the analyses including all participants, then running the analyses again after having excluded the participants who left the experiment and comparing the differences for significance (Leake & Lesik, 2007).
The same procedures were followed in examining the effects of including or excluding the results from participants who did not strictly adhere to the designated cut-off points (Leake & Lesik, 2007). Shaddish, Cook, and Campbell refer to this as a fuzzy cut-off point (2002). In the final analyses, only participants strictly adhering to regression discontinuity design requirements were included.

**Determining treatment effect**

Treatment effect in a regression discontinuity design is established by a significant discontinuity in the regression line at the predetermined cut-off score; visually this discontinuity appears as a jump in the line and change in slope at the cut-off point (Bryant et al., 2008; Johnson & Christensen, 2004; Leake & Lesik, 2007; Shadish, Cook & Campbell, 2002; Trochim, 1984). A causal estimate of the treatment effect is found by examining the direction and magnitude of this discontinuity (Leake & Lesik, 2007). According to Bryant et al. (2008) and Johnson and Christensen (2004), if a statistically significant discrepancy in the regression line exists at the cut-off point that determined placement into treatment or control group that would not have otherwise existed, the intervention had a significant effect on achievement.

**Assignment**

In order to determine treatment and control groups, three types of pre-existing quantitative reading achievement data were examined. The data included the Phonological Awareness Literacy Screening (PALS) for grades 1 – 3, the
NWEA Measure of Academic Progress (MAP) for grades 3 – 6, and the Colorado Assessment of Student Progress (CSAP) for grades 4 – 6. For each grade level and assessment, specific cut-off scores were determined in order to place students in intervention groups. As discussed by Shadish, Cook, and Campbell (2002), data used to determine placement in treatment or control groups must be at least ordinal in nature; all three assessments met this requirement. The PALS data included ratio level data; the MAP data included interval (RIT score) level data, and the CSAP data provided ordinal interval (RIT score) level data. Because each of the grade levels’ scoring range is different, cut-off scores also differed from grade level to grade level. The chosen benchmark scores for each grade level were a reflection of grade level proficiency.

While multiple data points were used by the Intervention Leadership Team to determine intervention placement, for the purpose of these analyses, strict adherence to one score per grade level was used in the regression discontinuity analysis. For students in first, second, and third grades, adherence to cut-off scores on the Phonological Awareness Language Survey (PALS) was used. For students in third, fourth, fifth, and sixth grades, strict adherence to cut-off scores on the Northwestern Evaluation Association’s Measure of Academic Progress (MAP) was used in the regression discontinuity analysis. For students in fourth, fifth, and sixth grades, strict adherence to cut-off scores on the Colorado Student Assessment Program (CSAP) were used in the regression discontinuity analysis.
Table 7 below shows the assessment used at each grade level as well as the cut-off score used to determine group placement.

Table 7

**Cut-off Criteria for Group Assignment**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Cut-off Assessment and Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PALS</td>
</tr>
<tr>
<td>1</td>
<td>61</td>
</tr>
<tr>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>38</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

In the real world setting of a school, a variety of factors affected placement in the intervention groups that must be considered when analyzing the data. For example, due to the number of teachers and resources available, a specific number of intervention slots were available for students. Unfortunately, there were times when more students met the cut-off requirements and were in need of intervention than there were spots available in the intervention groups. To complicate matters, strict adherence to the cut-off point was necessary to address threats to the internal validity of the regression discontinuity design. When students’ scores did not adhere to the cut-off criteria, the data were analyzed excluding the scores of these students.
**Instrumentation**

*Colorado Student Assessment Program (CSAP)*

*Description of the measure.*

The Colorado Department of Education (CDE) developed an assessment to evaluate what students know and are able to do at each grade level from third through tenth grades. The Colorado Student Assessment Program (CSAP) consists of three assessments in grades three through ten, one each for reading, writing, and mathematics, as well as a fourth assessment for students in grades 5, 8, and 10 in science. The CSAP measures student knowledge of the state content standards in reading, writing, mathematics, and science. While writing, mathematics, and science CSAP data are available, for the purpose of this investigation, only reading data were applicable and therefore discussed.

The reading portion of the Colorado Student Assessment Program (CSAP) consists of three sixty-minute assessments given to grades four through ten; for third grade, only two sixty-minute assessments are given. The tests consist of 70 items, 56 of which are multiple choice and 14 are constructed response. Approximately 56-60% of points on the reading assessment come from the multiple choice questions and the remainder of the points is earned on the constructed response questions. The multiple choice questions are machine scored; the constructed response questions are read and scored by independent hired readers, trained to use the scoring guides by the Colorado Department of Education.
The test assesses student growth on four of the six Colorado State Standards:

- Standard 1: Students read and understand a variety of materials
- Standard 4: Students apply thinking skills to their reading, writing, speaking, listening and viewing
- Standard 5: Students read to locate, select, and make use of relevant information from a variety of media, reference, and technological sources and
- Standard 6: Students read and recognize literature as a record of human experience

In the third grade assessment, 100% of the questions address standard 1. In the fourth grade assessment, 38% of the questions address standard 1, 21% address standard 4, 20% address standard 5, and 21% address standard 6. For grades 5 through 10, 37% of the questions address standard 1 and 21% of the questions address each standard 4, 5, and 6.

Final reading scores are reported on an interval scale with four ranges of scoring: unsatisfactory, partially proficient, proficient, and advanced. The score ranges for differing levels of reading proficiency are reported in the table below for grades three through six.
Table 8

*CSAP Proficiency Level Scoring Ranges for Spring 2008*

<table>
<thead>
<tr>
<th>Grade</th>
<th>Unsatisfactory</th>
<th>Partially Proficient</th>
<th>Proficient</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>150-465</td>
<td>466-525</td>
<td>526-655</td>
<td>656-795</td>
</tr>
<tr>
<td>4</td>
<td>180-516</td>
<td>517-571</td>
<td>572-670</td>
<td>671-940</td>
</tr>
<tr>
<td>5</td>
<td>220-537</td>
<td>538-587</td>
<td>588-690</td>
<td>691-955</td>
</tr>
<tr>
<td>6</td>
<td>260-542</td>
<td>543-599</td>
<td>600-695</td>
<td>696-970</td>
</tr>
</tbody>
</table>

*Reliability and validity information.*

The Colorado Department of Education (CDE) provides reliability and validity information for the CSAP in a technical report that is available online on the CDE website. The technical report includes reliability and validity data such as total test, subsection, and subgroup reliability data, inter-rater reliability, test validity, content-related validity, construct validity, divergent/discriminant validity, and predictive validity, among others.

Total test and subgroup reliability data were reported in terms of Cronbach’s alpha as a measure of consistency. Cronbach’s alpha was reported for the entire reading test as a whole, subsections of the reading test broken down by standard, and subgroup taking the test, including information such as ethnic group, migrant status, socioeconomic status, disability status, language acquisition level, gender, and accommodations received. A Cronbach’s alpha value of 0.80 or higher was considered to be adequate. For the reading test as a whole, the
median value of Cronbach’s alpha was .920 with a range of .90 - .93, indicating a high level of reliability. The subgroup analysis revealed lower levels ranging from .57 - .85. The analysis of subgroups revealed Cronbach’s alpha levels exceeding .80 for all subgroups in all grade levels.

A number of the items on the reading assessment involve constructed response and are therefore scored by individuals rather than by computer. Inevitably, raters vary in their evaluation and scoring of the items. Inter-rater reliability was measured using Kappa and revealed that agreement among raters was “relatively high” with a median value of .72 and a range of .49 - .96.

Content validity is the degree to which the assessment addresses the specific content taught in the Colorado public schools. In order to evaluate the content validity of the CSAP, a comprehensive curriculum review of the state standards was conducted by the CDE to ensure alignment between the standards taught and the content assessed on the CSAP. A panel of experts was used to review the items on the assessment and the standards to which they pertain in order to ensure alignment.

Construct validity refers to the extent to which a higher order construct, such as intelligence or reading ability, is assessed by the measure used (Johnson and Christensen, 2004). The CDE addressed construct validity through the use of both content as well as criterion–related validity.

Predictive validity measures the degree to which one score on one assessment can accurately predict performance on another measure in the future.
To determine predictive validity, student scores on CSAP one year were compared to the same students’ scores on CSAP another year. The median correlation value ($r_{2007-2008}$) was found to be .85 with a range of .81 - .87; the validity coefficient had a range of .89 - .94.

**Measure of Academic Progress (MAP)**

*Description of the measure.*

The second form of assessment used to determine growth in this study was the Measure of Academic Progress (MAP), created by the Northwest Evaluation Association (NWEA). The MAP, which is a computer adaptive assessment program aligned with state standards, includes tests to measure growth and achievement in mathematics, reading, and language usage; this study will examine results from the reading assessment only.

The NWEA suggests that students take the MAP up to four times per academic year to measure ongoing progress in each academic area throughout the school year. Students first take the assessment in the fall and then anywhere from 1 to 3 more times over the course of the school year. Student scores reported in percentiles, growth, and academic achievement (in a RIT score) are measured and reported by the assessment and are compared to ‘typical’ growth of students of the same grade on a national level.

For reading, two assessments can be given to students: the reading survey or the reading survey with goals. The reading survey is the shorter of the two assessments and consists of 20 questions; the reading survey with goals is a
longer assessment that consists of 42 items. All items on both assessments are multiple choice. For this study, the students were given the longer reading survey with goals on three occasions: a benchmark assessment was given in September 2008, a second monitoring assessment was given in January 2009, and a final assessment was given in May 2009.

Reliability and validity information.

Multiple measures of reliability were used to assess the consistency of the MAP assessment over time, forms, and test items. Test-retest reliability was assessed to determine the extent to which the same students answer the questions on the test the same way over time and was stated in terms of a Person product-moment correlation. Typically, a Pearson product-moment correlation of .80 is considered acceptable. Parallel forms reliability refers to the extent to which different forms of the same assessment yield the same results and is also often measured in using a Pearson product-moment correlation with an acceptable value of .85. To examine both test-retest reliability as well as parallel forms reliability, NWEA used a “more rigorous” form of assessment that combines the two measures into one test. In the case of the MAP assessment, the mixed test-retest/parallel forms reliability estimates ranged from .80 - .93 and only dipped below .80 on three occasions, all of which were on the second grade assessment on earlier forms of the MAP.

Internal consistency of the MAP was assessed by calculating the marginal reliability coefficient. A correlation coefficient was represented here using
Pearson product-moment correlation ($r$). For the 2005 version of the MAP, the Pearson product-moment correlation ranged from $r = .92$ to $r = .97$ for all grade levels and tests given in both fall and spring indicating high internal consistency.

Content validity, construct validity, and criterion-related validity were all measured for the MAP assessment. Content validity was established by ensuring that assessment content was in alignment with district and state standards. This was done by creating a test blueprint of content standards and selecting items for the test based upon their match to the state standards both in terms of content as well as difficulty.

The majority of validity evidence for the MAP came from concurrent criterion-related validity that examined how well scores from this assessment correlated with other well-established reading assessments. The NWEA compared the results of the MAP with results from 19 other state and national assessments and reported the Pearson product-moment correlation for each. Correlations above .80 were considered acceptable; of the 19 assessments correlated with the MAP, the majority met or exceeded this value.

**Phonological Awareness Literacy Screening (PALS)**

*Description of the measure.*

The Phonological Awareness Literacy Screening (PALS) was developed by the University of Virginia along with the state of Virginia to be used as a universal screening tool for all children in kindergarten through the third grade. The tool is used to identify children below grade level in reading at risk for falling
behind in school. This diagnostic assessment is currently used by the state of Virginia (as well as other schools and districts nationwide) to determine precisely what students are and are not able to do while reading; the results of which are used to aid in guiding reading instruction for struggling students.

Two different assessment tools are available to detect reading difficulties at a young age: the PALS-K is used with students in kindergarten and the PALS 1-3 is used with students in grades one through three. The assessment is used to measure knowledge of literacy fundamentals including phonological awareness, alphabet knowledge, knowledge of letter sounds, spelling, concepts of words, word recognition in isolation, and oral passage reading. The PALS has three components. The initial assessment (part 1) examines orthographic skills through spelling and word recognition. Students who do not meet a predetermined benchmark indicating that they are at or above grade level are then given the Level A and Level B assessments (part 2). Level A assesses students’ abilities in oral reading in context; specifically Level 2 measures accuracy, fluency, rate, and comprehension. Level B assesses students’ skills in alphabetics; alphabet recognition, letter sounds, and concept of words are assessed using this portion of the measure. If students still fall below benchmark on Level B, Level C is administered. Level C, (part 3) of the assessment, examines phonemic awareness measuring blending and sound-to-letter awareness in which students break words into their phonemes and spelling.
Reliability information for PALS assessment includes measures of internal consistency (subtask analysis), inter-rater reliability, and test-retest reliability. Subtask reliability examines the consistency of the various subsections of the assessment across a number of subgroups taking the test; subgroups include gender, grade, socio-economic status, and ethnicity. Cronbach’s alpha was used to determine the level of consistency between groups on each subtask. Alpha coefficients of acceptable values were found, ranging from .66 - .88 with a mean of .80 across a two-year time span.

Inter-rater reliability was calculated to determine how consistently different individuals scored the same assessment. To determine inter-rater reliability, two independent scorers were instructed to score 468 PALS 1-3 assessments administered by teachers; raters were trained on scoring the assessments and were told not to compare or change their results based upon scores determined by the other rater. Correlations coefficients were calculated to measure inter-rater reliability. Across a six-year time span, Pearson correlation coefficients for inter-rater reliability ranged from .98 - .99 with few exceptions.

Test-retest reliability statistics were calculated to determine how consistent the PALS K and PALS 1-3 assessments were over a short period of time when given to the same individual. The second administration of the assessment was conducted no less than one week and no more than two weeks after the initial administration to determine how consistently the assessment
measured reading ability. The reliability estimates, expressed using Pearson correlation coefficients, were all high (ranging from .88 - .97) and statistically significant (p < .001) indicating that the assessment is consistent over brief periods of time.

For the PALS assessments, three types of validity were addressed through the examination of content validity, construct validity, and criterion-related validity (both predictive as well as concurrent). Content validity was addressed by aligning assessment content with what previous research, as well as reading experts, deem essential for proficient reading comprehension. To ensure content validity, test developers ensured that all tasks included in the assessments were well supported by considerable research findings and expert analysis.

Construct validity refers to a measure’s ability to evaluate and identify the underlying concepts it purports to assess. The theoretical model or construct measured by the PALS assessment is described by the creators of PALS as “children’s knowledge of speech sounds, knowledge of print, and the ability to perform tasks that required the wedding of the two” (Invernizzi, Meyers, and Juel, 2005, p. 41). This model was tested in two manners: principal component analysis and discriminant analysis.

A series of factor analyses were conducted during numerous stages of development of the PALS assessments over multiple years. Initial factor analyses determined that a unitary factor described as ‘reading ability’ was responsible for 58 – 74% of the variance in scores. After multiple revisions and field tests, a
factor analysis showed this unitary factor was responsible for producing 89 – 94% of the variance in scores.

Discriminant analyses were used to determine how well the PALS assessment differentiated between pre-existing groups based upon reading ability and special needs. One of the primary purposes of the PALS assessments is to identify students in need of supplementary reading instruction as a result of being below grade level in skills essential to reading success and comprehension. The authors, therefore, tested whether a combination of PALS subtask scores accurately predicted membership in one of two predetermined groups: students identified or non-identified as needing additional reading support. A statistically significant Wilks’ lambda (p < .001) for grades one through three over the course of three academic years indicated that the measure correctly predicted membership in one of the two groups with 93 – 99.9% accuracy.

Two primary types of criterion-related validity were assessed for PALS 1 – 3: predictive validity and concurrent validity. To assess the predictive validity of the PALS 1 – 3, the results of initial PALS screening (given in the fall) were compared to two later assessments of reading ability and comprehension: the Stanford Achievement Test (Stanford-9) and the Virginia Standards of Learning (SOL) grade level reading achievement tests, both given in the spring of the same school year for grades one through three. Predictive validity was assessed using correlation coefficients and regression analysis; both predictors achieved statistical significance ($R^2_{adj} = .739$, p < .001).
Concurrent validity was assessed by comparing results from the PALS assessments to four different measures all taking place at approximately the same time. Correlations were made between the PALS 1 – 3 and the *Qualitative Reading Inventory* (QRI-II), the *Developmental Reading Assessment* (DRA), the *Stanford-9*, and the *California Achievement Test* (CAT/5). Medium-high significant correlations were found between the PALS 1-3 and the QRI-II (r = .73, p < .01), the DRA (r = .82, p < .01), the *Stanford-9* (r = .75, p < .01) and the CAT/5 (r = .70, p < .01).

Taken as a whole, the reliability and validity data support the use of the PALS K and PALS 1-3 assessments as a stable and reliable measure to identify students in need of additional instruction in reading skills and comprehension.

**Assessment Administration**

The Colorado Student Assessment Program (CSAP) was administered within mainstream classrooms for all students not requiring special education, language, or behavior accommodations. The third grade CSAP reading assessment was given during the second week of February, while all other grade level assessments were given during the first three weeks of March. These assessments were proctored by classroom teachers unless otherwise specified by special education requirements. In order to ensure that all assessments were given in a standardized manner, a script for proctoring the assessment was given to all proctors and time limits for taking the assessments were enforced, as specified by the Colorado Department of Education.
The NWEA’s Measure of Academic Progress (MAP) was given to all students three times throughout the school year. The pre-assessment data used for this study was from the May of 2008 assessment. Over the course of this study, MAP was administered in September of 2008 to provide guidance for instruction; it was given in January of 2009 to evaluate and monitor progress; and in May of 2009 to measure growth compared to spring of 2008. Unless otherwise specified by individual students’ special educational programs, all students took this computer adaptive test as a whole class. All directions and instructions throughout the assessment were given by the computer while teachers monitored and proctored the assessment. This test was given in the school computer lab.

The Phonological Awareness Literacy Screening (PALS) was given to students individually for portions of the test and as a whole class for other portions by both classroom as well as specialist teachers. Each of the teachers was trained to administer the exam with fidelity and was given a manual that detailed proper administration. The spelling portion of the assessment was given to whole classes while the remaining sections were administered to students individually. Pre-assessment data for this study were PALS data from May of 2008. Assessments were given to new students in September of 2008 and to all students in grades 1-3 in May of 2009 to assess growth as compared to the previous spring. First grade students were given an additional assessment during January of 2009 to evaluate progress. As new students entered the school, they were given the assessment individually by specialist teachers at the time of
enrollment; these students then followed the schedule for administration for the remainder of assessments for the rest of the school year.

**Statistical methods**

**Descriptive statistics**

All statistical analyses were conducted using SPSS software version 15. Descriptive statistics were analyzed to ensure that assumptions of the regression-discontinuity design, such as tests of normality, independence, homoscedacity, etc., were met. Chi square tests of independence were conducted to examine categorical variable associations, such as between gender, ethnicity, language acquisition, special education status, and free/reduced lunch status. This non-parametric test was used to reveal whether or not differences existed between the sample group and the whole school population.

A one-way analysis of variance (ANOVA) was used to reveal any statistically significant differences between the sample and the larger school population on any numerical data, such as the ages of students in the sample group versus those in the larger school population. All other numerical descriptive data given by the school and district was analyzed in a similar manner.

All analyses were considered statistically significant with a p value equal to or less that 0.05.

**Regression Discontinuity Analysis**

The primary inferential statistic conducted in this study was a regression discontinuity analysis. This analysis was used to reveal whether or not a
treatment effect existed resulting from implementation of the Response to Intervention model. Treatment effect was apparent if a significant discontinuity and difference in slope in the regression lines existed at the point of cut-off of reading scores determining group membership (comparison versus treatment).

As discussed above, different assessments of reading achievement were used for students in different grades and multiple assessments were used to measure reading ability and growth for each student. While students were placed in reading interventions based upon a combination of scores on each of these assessments, adherence to only one of the criteria was used in the regression discontinuity analyses. Separate regression discontinuity analyses were run using the data sets for the three different assessments. The regression discontinuity analyses were conducted using scores from the MAP, PALS, and CSAP scores for each group of students. An analysis of growth of students in first grade was conducted using the PALS assessment from spring of 2008 compared to the PALS assessment from spring of 2009. The first-grade assessment was conducted separately because the initial pre-assessment was scored on a different scale than that for assessments in second and third grades. A regression discontinuity analysis was conducted using spring data from 2008 and 2009 for students in second and third grades on the PALS. Growth of students in grades three through six was measured using spring data from 2008 and 2009 on the Northwestern Evaluation Association’s Measure of Academic Progress (MAP). Reading
growth of students in grades four through six was measured by comparing CSAP data from spring of 2008 to spring of 2009.

Because there were occasions when students could not be placed in intervention groups though their scores were below the cut-off point for assignment (e.g., when students enrolled in the school after groups had been assigned and when groups were at capacity), students whose scores violated strict adherence to cut-off criteria were excluded from the analyses.

**Analysis of Variance**

To evaluate whether or not different subgroups were differentially impacted by their participating in Response to Intervention model, analysis of variance (ANOVA) was used. ANOVA was conducted to determine if students of different ethnic backgrounds, of different free/reduced lunch status, special education status, or language acquisition levels were differentially impacted by treatment. Gain scores were calculated for each group on each of the assessments and ANOVAs were run to examine differential growth rates for each of the subgroups within the treatment and intervention groups.

**Independent samples t-tests**

Independent samples t-tests were conducted to evaluate the effect of gender and gifted and talented status on gain scores for each of the assessments, comparing students in the intervention group to the students in the comparison group.
Delimitations

Two primary delimitations existed in the qualitative component of the study: first, because intrinsic case studies are inherently risky to generalize (Johnson & Christensen, 2004; Yin, 1992), and second, due to the limited time frame of the study. While proper measures were taken to ensure the credibility and trustworthiness of the data, qualitative data is inherently context-specific and difficult to generalize to other settings. Additionally, this study was limited to one academic year; in order to provide a more accurate and complete picture, a longitudinal study spanning multiple school years would be more comprehensive.

While multiple measures were also taken to ensure the reliability and validity of the data collected and conclusions drawn in this study, invariably delimitations exist. Four delimitations were present in the quantitative component of the study. Because of the small number of participants and non-random assignment to treatment groups, the ability to detect a small effect size would have required a significantly greater sample size (Leake & Lesik, 2007). Additionally, while a regression discontinuity design has the ability to provide unbiased causal estimate as well as estimates of treatment effects (Shadish, Cook, & Campbell, 2002), it has less power than a randomized experiment (Leake & Lesik, 2007). Difficulties also occurred in meeting one of the primary assumptions of a regression discontinuity design, which was strict adherence to cut-off points. In order to evaluate the impact of the cases that did not adhere to the cut-off points, analyses were run excluding these cases; this, then, led to an
even smaller sample size. Another delimitation of the study is the lack of a consistent measure for achievement across grade levels. This decreased the sample size for the treatment group as a whole and made growth rates difficult to compare over the course of the different grades. While creating a composite score would have helped to maintain a higher sample size for the treatment group, calculating this composite score was not possible due to the loss of the cut-off point required by the regression discontinuity design.

**Ethical Considerations: Positionality and Researcher’s Bias**

In qualitative research, it is important to explain and acknowledge the position of the researcher in the context of the study (Creswell & Plano Clark, 2007). As a teacher at the research site, I was an insider and complete participant in this experiment (Herr & Anderson, 2005). I was teaching literacy intervention groups and was one of the Intervention Leadership Team (ILT) members intimately involved in designing and implementing the intervention model. My involvement in the program raised a number of ethical concerns which must be addressed. “A common mistake in this type of research,” according to Herr and Anderson (2005), “is to treat one’s personal and professional self as an outside observer rather than as an insider committed to the success of the actions under study” (p. 33). By ignoring my status as an insider, as well as my investment in the success of the intervention model at the school, I could very well have ignored or minimized the impact of my position as an insider on the results and validity of the study. While I could in no way change my position as an insider, researchers
such as Herr and Anderson (2005), Creswell (2007), and Mills (2007) suggest that acknowledging and making one’s biases known explicitly at the onset of research, as well as addressing the manners in which the biases can be addressed through procedural measures, adds to the trustworthiness of the data and findings.

As a literacy intervention specialist at Foothill Elementary School, as well as one of the leaders of the Intervention Leadership Team, I was personally, as well as professionally, invested in the success of the intervention in two primary ways. First of all, I felt committed to the success and achievement of the students receiving intervention. I felt committed to their success personally because I cared deeply about their achievements and efficacy; I wanted these students to succeed. Showing through this research that the intervention model helped these students to succeed is important to me. I was also professionally invested in the program because it was my job to work to ensure the success of these students. I could not help but want to demonstrate that the intervention model met its goal of raising the achievement of struggling readers to show that our work as teachers was effective. The success of this program was also beneficial to my school for purposes of funding and esteem and to show that our model was and is effective. I know and admit my biases, have attempted to discuss these biases throughout my writing, and worked to address these biases through member checking and peer review.

While the specific details of validity and reliability, or trustworthiness and credibility, were addressed in much greater detail in previous sections, a few
procedural techniques can be mentioned here to demonstrate the manners in which I have attempted to address and attend to issues of researcher positionality and personal bias. Geoffrey E. Mills (2007) suggests that “if we conduct our research in a systematic, disciplined manner, we will go a long way toward minimizing personal bias in our findings” (p. 97). To minimize my own personal bias, I took preventive steps and instituted precautionary measures throughout the research process. Member checking was used on a number of occasions to ensure that I accurately documented and reported the experiences of the classroom teachers, specialists, and administrators involved in implementing the intervention model. Ongoing peer reviews of my data, conclusions, and interpretations ensured that I fairly and impartially analyzed and interpreted the data and made certain that I had portrayed the findings clearly. In other words, the peer reviews were included in order help to make sure I did not overlook the “taken for granted” aspects of the work and acknowledged them from an outsider’s perspective (Herr & Anderson, 2005). These critical friends also helped to ensure that my biases did “not have a distorting effect on outcome” and “serve[d] as a kind of devil’s advocate” (Herr & Anderson, 2005; p. 60). These measures, in combination with others discussed elsewhere, were used to hold this research to high standards for reliability and validity.
Chapter 4 - Qualitative Findings: Working to Foster Learning Through Response to Intervention

Introduction

The purposes of this study were two-fold. The first purpose was to examine the effects of a newly designed and implemented Response to Intervention (RtI) model on raising achievement scores in reading in a suburban elementary school. The second purpose was to describe the implementation processes and the experiences of the administrators, teachers, and specialists involved. The study was a concurrent, nested mixed methods design. The qualitative portion of the study was an intrinsic case study that described the implementation process and the quantitative portion was a quasi-experimental design that examined the effectiveness of the RtI model in raising reading achievement scores after the first year of implementation. This chapter presents the findings of the qualitative component of the study and Chapter Five describes the quantitative findings. Chapter Six discusses the study’s conclusions and implications.

Three questions guided the qualitative case study and will be addressed in this chapter:

1. How was the Response to Intervention (RtI) model designed and implemented at the district level?
2. How was the Response to Intervention (RtI) model designed and implemented at the school level?

3. What were the experiences of the district administrators, school administrators, classroom teachers, and specialists during the design and implementation of the Response to Intervention (RtI) model?

First, I describe the process of design and implementation of the RtI model district wide, including the experiences of the staff of Summerset Public Schools. Second I describe the structure of Summerset’s RtI model. Third, I describe the manner in which the staff of Foothill Elementary designed, implemented and experienced its RtI model within the confines of the district.

A Reinvented District

The structure of Summerset Public School district is very different from districts in the surrounding area. Prior to 2002, Summerset consisted of nine traditionally structured schools: one preschool, five kindergarten through 5th grade elementary schools, two 6th through 8th grade middle schools, and one 9th through 12th grade high school. Since 2002, Summerset has received more than $2.6M from a national foundation, as well as a number of other substantial grants, for the purpose of changing the large, traditional schools within the district into specialized, ‘small by design’ magnet schools.

At the start of the 2006-2007 school year, following a multi-year research process and massive reinvention, the district consisted of sixteen small schools,
each with its own philosophical and pedagogical mission. The schools included one early learning center housing preschool through kindergarten classes; one preschool through sixth grade; three elementary schools serving grades K – 6; five combined elementary and middle schools serving kindergarten through eighth grade; two schools serving kindergarten through 12th grade; one combined middle and high school housing grades 7 through 12; and three high schools serving grades 9 through 12. At the start of the 2009-2010 school year, an adult education school was also added serving students 18-20 years of age.

Summerset designed the small schools with the goal of meeting the diverse needs of its students by offering a variety of learning environments, each with its own pedagogical philosophy, including Back-to-Basics, Expeditionary Learning, New Technology, and Montessori, among others. The motivations for this massive reinvention were to increase student achievement on standardized tests, improve high school graduation rates, and provide a system of choice in which students have a variety of academic options to suit their individual needs. However, while some of the schools saw improvements in student achievement, teachers, principals, and parents at nearly all of the schools found that scores on high stakes tests, such as the Colorado Student Assessment Program (CSAP) were not positively impacted to the extent that had been anticipated.
Table 9

**Summerset Public Schools Prior to 2002**

<table>
<thead>
<tr>
<th>School Structure</th>
<th>Grades</th>
<th>Number of Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Learning Center</td>
<td>Pre-school – Kindergarten</td>
<td>1</td>
</tr>
<tr>
<td>Elementary Schools</td>
<td>Kindergarten – 5th</td>
<td>5</td>
</tr>
<tr>
<td>Middle Schools</td>
<td>6&lt;sup&gt;th&lt;/sup&gt; – 8&lt;sup&gt;th&lt;/sup&gt;</td>
<td>2</td>
</tr>
<tr>
<td>High Schools</td>
<td>9&lt;sup&gt;th&lt;/sup&gt; – 12&lt;sup&gt;th&lt;/sup&gt;</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 10

**Summerset Public School Currently* (2008-2009)**

<table>
<thead>
<tr>
<th>School Structure</th>
<th>Grades</th>
<th>Number of Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Learning Center</td>
<td>Preschool – Kindergarten</td>
<td>1</td>
</tr>
<tr>
<td>Early Learning/Elementary</td>
<td>Preschool – 6&lt;sup&gt;th&lt;/sup&gt;</td>
<td>1</td>
</tr>
<tr>
<td>Elementary</td>
<td>Kindergarten – 6&lt;sup&gt;th&lt;/sup&gt;</td>
<td>3</td>
</tr>
<tr>
<td>Elementary/Middle School</td>
<td>Kindergarten – 8&lt;sup&gt;th&lt;/sup&gt;</td>
<td>5</td>
</tr>
<tr>
<td>Elementary/Middle/High</td>
<td>Kindergarten – 12&lt;sup&gt;th&lt;/sup&gt;</td>
<td>2</td>
</tr>
<tr>
<td>Middle/High School</td>
<td>7&lt;sup&gt;th&lt;/sup&gt; – 12&lt;sup&gt;th&lt;/sup&gt;</td>
<td>1</td>
</tr>
<tr>
<td>High School</td>
<td>9&lt;sup&gt;th&lt;/sup&gt; – 12&lt;sup&gt;th&lt;/sup&gt;</td>
<td>3</td>
</tr>
</tbody>
</table>

*Following this study during the 2009-2010 school year, an adult education school was added for adults ages 18-20.
Figure 1. Colorado Student Assessment Program (CSAP) Reading Proficiency Levels for Colorado, Summerset Public Schools, and Foothill Elementary School (2007)

Following the Reinvention: Need for More Change in Summerset

According to the Colorado Department of Education (2008)

The Response to Intervention (RtI) model is a school-wide initiative that allows for the utilization of resources for students in need of academic and/or behavioral support. RtI provides a seamless system of interventions and resources which allows students to make significant progress...The purpose of Response to Intervention is to improve educational outcomes for all students. RtI provides a continuum of evidence-based, tiered interventions with increasing levels of intensity and duration which is central to RtI.

The Colorado Department of Education (CDE) requires the implementation of a Response to Intervention model to address the needs of students who are at risk of failure or need additional academic or behavioral support (CDE, 2008). Research supporting the RtI suggests that 80-90% of students should be able to succeed academically in mainstream, general education provided that research-based best practices are implemented in the classroom
(CDE, 2008; Pohadjski, 2008; Wright, 2007). A smaller portion of students, approximately 5-10%, require additional services to supplement their general education in the form of moderate interventions in any of the content areas in which they are not proficient after receiving adequate classroom instruction. These targeted interventions may come in the form of pull-out groups or in-class additional, differentiated services, depending on the available resources at the school and individual student needs. A third group of students, typically 1 - 5% of the student population, will require additional intervention in order to achieve proficiency (Podhajski, 2008). These students will receive intense pull-out services in groups of two to three with a specialist or special education teacher for the subject or subjects in which he or she struggles, such as reading, writing, or mathematics. The Colorado Department of Education refers to this as a multi-tiered model of instruction and intervention (2008) that is represented visually in Figure 2 below (Podhajski, 2008).
Figure 2. Typical Repose to Intervention Multi-Tiered Model

As demonstrated by Summerset students’ scores on the Colorado Student Assessment Program (CSAP), district administrators found that the needs of this population were better represented by an inverted triangle or pyramid, in which fewer students were reaching proficiency and more students were in need of academic intervention than should be the case, had general education in the mainstream classroom been successful. The district Intervention Coordinator commented that

After the reinvention we weren’t seeing the gains that we needed to see and that was really, really frustrating. We knew we needed to do something different. We were finding that we didn’t have the typical RtI model of 80% of our kids being proficient and 15% being in need of targeted intervention; it wasn’t like that at all. We were lucky if 30% of our students were proficient.
One of the major conclusions the district-level administrators drew from these data was that the district’s major overhaul in mainstream general education was not producing increased academic achievement.

**Changing Mandates Initiate More Change for Summerset**

As discussed in Chapter 2, early national mandates such as the Equal Education Opportunities Act of 1974, the Education for All Handicapped Children Act (EAHCA) of 1975 (Holdnack & Weiss, 2006) provided the foundation for serving struggling students through special education services. These mandates led to the creation of what was referred to as a ‘discrepancy model’, in which students qualified for special education based upon the presence of a significant discrepancy between their Intelligence Quotient (IQ) and academic performance. Schools relied upon this model for more than three decades. (For a full discussion of these mandates and their implications, see Chapter 2.)

More recent mandates, such as the No Child Left Behind Act (NCLB) of 2001, and the Individuals with Disabilities in Education Improvement Act (IDEA) of 2004, have altered the manner in which schools identify and serve students at risk for failure in education (Fuchs, Fuchs, & Speece; 2002; Hollenbeck, 2007; Shaul & Ganson, 2005).

The recent mandates forced schools to change the manner in which they identified and served special education students (e.g., Gresham, 2001; Hollenbeck, 2007; Mellard, Deshler, & Barth, 2004; Reschly & Hosp, 2004).
The leading alternative approach to the discrepancy model was the Response to Intervention (RtI) model. As a framework for educational reform, the RtI model must be implemented in order to ensure research-based practices are in place in the general education setting; a problem solving process must addresses the needs of individual students; assessment and progress monitoring must be used to examine and follow student progress; and schools are required to promote family and community engagement and participation. As of August 15th, 2009 all schools were required to employ a multi-tiered model of instruction and intervention to meet the needs of all students (Colorado Department of Education, 2008).

In order to respond to these changing mandates and meet the needs of students in Summerset Public Schools, the district established a “steering committee” whose goal was to research Response to Intervention and determine how Summerset could best meet the needs of its students while following the new state and federal guidelines.

**The Steering Committee**

The following diagram illustrates the developments that occurred in Summerset beginning with the changes in national policy and the academic failure of a large percentage of students in the district, followed by the creation of a district steering committee formed to research Response to Intervention, and continuing with the implementation of the new Response to Intervention model at the district and school level.
The steering committee comprised a group of district employees with a wide variety of experiences and expertise. Members included school psychologists, school administrators (directors), literacy intervention specialists, social workers, school-based therapists, mentor coaches, special education teachers, gifted and talented specialists, and members of the district level administration team. The steering committee also included six district level personnel and was led by the district Director of Student Services. From August through October of 2007, the group met every other week. In November 2007, the district Assessment Coordinator joined the committee; at this point the committee members decreased the frequency of their meetings to once per month. In January 2008, the steering committee began to meet with three other district level personnel who comprised the heads of the Learning Services department and this combined team continued to meet monthly through May 2008.

The steering committee began its work by reviewing research on Response to Intervention. They examined research on the structures of the model, the manner in which it could be implemented, the resources needed to implement an RtI model, and the paperwork involved in documenting the process of serving students and cooperating with parents. Specifically, the committee examined research conducted by George Basche, John McCook, Jim Wright, and John Hoover as well as the Exceptional Student Services Unit of the Colorado Department of Education, the Heartland Project, and the San Luis Valley Board of Cooperative Educational Services.
Members of the steering committee also examined the efforts of five other local districts that had 3-5 years of experience with Response to Intervention practices in their schools. The committee relied on the Colorado Department of
Education (CDE) RtI Guidebook, as well as documents from these other school districts. These documents included problem solving team plans, intervention plans, intervention specialist schedules, and parent communication forms. Kathy Davis, one of Summerset’s two Response to Intervention Coordinators, stated that, while no specific criteria was used to choose districts to examine, they “wanted to look at what other districts had already done in the hope of steering clear of some of the pitfalls that occur when implementing a new initiative.”

Beyond looking at Response to Intervention documents and day-to-day processes, the committee also examined the manner in which other districts presented their models to schools and staff. One of the conclusions reached by the steering committee was that the districts had hired outside consultants to design a Response to Intervention model that was then taught to the staff through professional development and in-service trainings. For example, Mrs. Davis explained that Boulder Valley Public Schools brought in outside consultants to create a guidebook to be implemented by the schools and teachers. Here she explains the steps taken by Boulder Valley:

Boulder Valley had a huge RtI binder that goes through every piece of what Response to Intervention looks like. They brought in outside contracted people that were experts in RtI to create a big notebook [of procedures and documentation]. Then last year [2007-2008] they were working on training their staff on everything that was in there.

Although outside consultants played a key role in other districts’ designs, Summerset decided to rely on the expertise of its own staff to design its Response to Intervention model to meet the unique needs of the district. According to
Kathy Davis, “Summerset is well known for their autonomy and making their own mark on things. So they look at the current research and then put their own spin on things.”

From the beginning of the 2007-2008 school year and continuing through the 2008-2009 school year, Kathy Davis explained, much time and effort was spent creating the Summerset Response to Intervention guidebook. Using the expertise of staff members in the district and the knowledge gained examining the work of other districts, Response to Intervention Coordinator, Kathy Davis, and Director of Student Services, Ben Hamilton, created the district’s guidebook for implementing its Response to Intervention model. Here Kathy Davis describes the process the district took in designing the procedures and products unique to the district:

Even though there were many different districts around the country and a couple in the state that had started this work, we started from scratch in Summerset to create our Guidebook. We didn’t have anything, so last year [2007-2008] the big push was for the Guidebook. We used different pieces from the Colorado Department of Education, from Boulder Valley, and from the Heartland Project, put the Summerset spin on them, and created all of our own documents. We re-did all of the Problem Solving documents, all of the data collection forms, and all of the progress monitoring notebooks. All of those are brand new to Summerset and were created by people here in Summerset.

Currently the Summerset Response to Intervention Guidebook consists of 10 sections including: an introduction to RtI in Summerset; key roles and responsibilities in RtI; a description of the multi-tiered model of instruction and intervention; Problem Solving Team and Intervention Leadership Team

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processes; guides to assessment; information about research-based and evidence-based interventions; data analysis information; resources for parent and community involvement; new Specific Learning Disability criteria; and a final section of miscellaneous information. At the conclusion of this study, these sections were still in draft form and were being revised by Mrs. Davis and district Intervention Specialists. While these sections will not be discussed individually in this study, the topics in the guidebook will be described in this chapter.

**Goals Set for Implementation of the Summerset Response to Intervention Model**

At the end of the 2007-2008 school year, the district steering committee set two goals for RtI implementation to be met by the end of the following school year. The first goal required that staff at each school would understand the Summerset Multi-Tiered Model of Instruction and Intervention and be able to describe the model’s application to their own school. The second goal required that each school would establish a Problem Solving Team.

**The Structure of Summerset’s Response to Intervention Model: A Multi-Tiered Model for Instruction and Intervention**

Summerset’s Multi-Tiered Response to Intervention model was taught to teachers and staff members through professional development, in-service trainings, and the new teacher induction program. The model is represented by the three-tiered pyramid in Figure 4. The interventions listed under each of the tiers (Universal, Targeted, and Intensive) show the variety of intervention
programs and types available throughout the district at different school sites. Each of the tiers of the pyramid is described below. It is important to note that while the research for this study was completed at the end of August, 2009, the process described is currently in use and is therefore described in the present tense.

**Figure 4. Summerset Multi-Tiered Model of Academic Instruction and Intervention**

**Tier 1: Universal Instruction**

The bottom tier of Summerset’s multi-tiered model of instruction and intervention is referred to as either “Tier 1,” “Core Instruction” or the “Universal Level”; all of these terms can be used interchangeably as they have the same meaning. Tier 1 instruction takes place in the mainstream classroom and is
delivered by a general education classroom teacher. The Summerset RtI Guidebook explains that within Tier 1:

• Core instruction should meet the needs of at least 80% of the students

• Research-based instruction that is high quality is delivered to all students

• Core instruction is implemented with fidelity using a curriculum that is viable, rigorous, relevant and standards-driven

• Universal supports are available to all students addressing academics and behavior within the general education classroom

• A variety of differentiated strategies are implemented by the classroom teacher as soon as a student exhibits learning or academic needs Teachers’ strategies can include:
  
  o Small groups

  o Differentiated instruction for application of skills and concept formation

  o Re-teaching

  o Enrichment

  o Additional practice

• Teachers may change their method of instruction, provide students with targeted instruction in differentiation, or provide supplemental instruction, as well as provide accommodations or modifications (Colorado Department of Education, 2009)

The Summerset Guidebook also specifies the manners in which student progress is assessed and monitored. In order to assess and monitor student progress in Tier 1, all students are tested using universal screenings in a variety of content areas. Depending on the specific assessment, universal assessments are given up to three times per year to evaluate and monitor student progress. For
example, the Colorado Student Assessment Program (CSAP) is given once per year in March and the Northwestern Evaluation Association Measure of Academic Progress (MAP) is given three times during the school year in September, January, and May. Students who are not making adequate progress (i.e., are not meeting grade level benchmarks) are identified through these universal screenings and their specific needs are addressed through Tier 2 intervention.

**Tier 2: Targeted Intervention**

When students are not performing at their expected grade level, their needs are met through the implementation of “Targeted Interventions,” or Tier 2 instruction. According to Summerset’s RtI guidebook, the purpose of Tier 2 curriculum, instruction, and intervention is:

- To remediate specific skill or concept deficits for students who are not making adequate academic gains or have mild to moderate difficulties in the area of social competence. The instruction in Tier II is explicit, systematic, and aligned with Tier I curriculum and instruction. Instructional interventions are differentiated, scaffolded, and targeted based on the individual needs of students as determined by assessment data.

- Tier II instruction can also be used to enrich and enhance education of students who have demonstrated proficiency in the benchmarks of the standards. The instruction in Tier II should contain sufficient depth, breadth, and complexity to increase individual student’s skills (Colorado Department of Education, 2009).

Tier 2 interventions are targeted to meet the needs of the 5-10% of students who do not made adequate progress after receiving Tier 1 instruction. These interventions may be provided within the mainstream classroom, either by the
classroom teacher or additional support staff such as a paraprofessional, or outside of the classroom by a specialist such as literacy intervention teacher or special education teacher. The interventions are specifically targeted to meet the area(s) of concern identified by universal screening assessments.

As discussed in Chapter 2, targeted interventions can be provided to students in two ways: through a Problem Solving Model and/or through a Standard Treatment Protocol. For the 2008-2009 school year, Summerset set the goal of having functional Problem Solving Teams at each of its schools. These Problem Solving Teams are an essential component of Tier 2 intervention.

**Problem Solving Teams – A critical component of Tier 2**

Prior to the 2008-2009 school year, each school site had a collaborative team of teachers, referred to as a Child at Risk in Education (CARE) team, that helped teachers to serve students identified as struggling or at risk of academic or behavioral failure. These teams, composed of classroom teachers, administrators, and specialists, met weekly to discuss the challenges presented by struggling students, the steps taken by their teachers to help them, and to brainstorm ideas and interventions to be employed in the classroom.

While the goal of these teams was to provide early intervention for students, some teachers and administrators found the process tedious, frustrating and, at times, unsuccessful. Kathy Davis put it this way:

> Often when teachers left CARE teams they were so frustrated because they would say, ‘Why did I go to that? I didn’t get any intervention ideas, and no one’s really going to help me track any of this!’
Ben Hamilton noticed similar feelings at other schools within the district:

“We talked about ideas, like what’s working and what’s not, but [there were]
some things about CARE teams that people were frustrated about.”

Laura Rossi, a classroom teacher and former member of the previous
elementary-level CARE team also felt that the process was difficult and
frequently ineffective.

It was kind of an early identification tool for kids with a need, but it was
much more anecdotal. Just a group of teachers throwing around ideas that
had worked in their classroom…I guess it was much more casual; much
less formal. We would look at their CSAP scores and other district
assessments and then their grades on their report card, but there wasn’t the
focus on exactly what it was about reading that was giving them trouble.
It was more of a global shooting in the dark generation of solutions or
possible solutions. We had some success because we had some smart
teachers who have ideas about how to teach students how to read.
Sometimes CARE team was successful, but I think teachers often
expected someone else from outside the classroom to intervene.

Teachers and administrators across the district shared these frustrations.

Frustrating and often ineffective CARE teams, coupled with new mandates, such
as No Child Left Behind (NCLB) and the Individuals with Disabilities in
Education Act (IDEA) enforcing the use of a Problem Solving Model to address
student needs, led to Summerset restructuring its CARE teams to follow the
Problem Solving steps guided by the Colorado Department of Education.

The following diagram (Figure 5) illustrates the process followed by
Summerset Problem Solving Teams to address the individual needs of students at
risk for failure.
Figure 5. Summerset’s Problem Solving Team (PST) Process

The Problem Solving Team (PST) process, now a critical component of Tier 2 intervention, was established in all Summerset schools in the 2008-2009 school year and follows this process: The Problem Solving process begins when a teacher submits an official Request for Student Assistance Form to the school’s leader of the Problem Solving Team (PST), referred to as the PST facilitator. The
Request for Student Assistance of concern. When the PST facilitator receives a Request for Student Assistance Form, she schedules an initial PST meeting with the rest of the team. Prior to the initial PST meeting, the classroom teacher completes and returns to the PST facilitator a second form: the Student Information Form. This form includes a variety of in-depth information such as student strengths, areas of teacher concern (both academic and behavioral), all available standardized test scores, and previous steps taken to provide intervention in the areas of concern.

The Problem Solving Team comprises classroom teachers, administrators, and specialists, such as literacy intervention specialists and special education teachers, depending on the individual student’s needs. For example, if the student is struggling with articulation of sounds, the school speech pathologist will be asked to attend; if the student struggles with emotional difficulties, the school psychologist will attend. Parents and/or guardians of the student are also included in these meetings. The team reviews the student information, gathers additional information from the parents and specialists (e.g., previous health concerns, pertinent medical information, family history, and hearing and/or vision screening results), sets goals for student growth, and investigates research-based interventions to address the specific needs of the student. At this first meeting, an initial Intervention Plan is drawn up including specific, quantitative goals for student growth, research-based interventions to be employed, and dates for follow up meetings of the Problem Solving Team to evaluate progress. The classroom
teacher then uses this plan to implement interventions and monitor the progress of
the student using quantitative assessments until the next PST meeting, which
occurs six weeks after the initial meeting.

In order to monitor the progress of students going through the Problem
Solving process, in 2008, Summerset adopted an online tool developed by
Pearson Assessment and Information called AIMSweb, which stands for
“Achievement Improvement Monitoring System” (AIMSweb, 2009). AIMSweb
is used to examine and track the progress of students receiving interventions in
kindergarten through eighth grades. According to the AIMSweb website,

Pearson’s AIMSweb uses direct, frequent and continuous student
assessment to identify students at risk for falling short of year-end
academic targets; measure student progress in an accurate and timely
manner; and access, interpret and manage this data for teachers, parents,
students and administrators (AIMSweb, 2009).

AIMSweb is a curriculum based measure used to assess student progress
through benchmarking (three times annually), strategic monitoring
(approximately every 4-6 weeks), and progress monitoring (weekly or bi-weekly)
that can be used for nearly all content areas (AIMSweb, 2009). The reading
curriculum-based measure, or R-CBM, is an oral fluency reading prompt during
which students read aloud from a grade level text written to represent general
curriculum for one minute; as the student reads aloud, the teacher counts the
number of words read correctly and errors made. According to AIMSweb, “R-
CBM has be demonstrated to be a valid general outcome measure of reading”
meaning that it (1) uses standard, valid assessments, (2) measures something
important (in this case reading ability and fluency), (3) is a task of about equal difficulty tied to general curriculum that is (4) measured over time (AIMSweb, 2009). Here Kathy Davis explains Summerset’s rationale for using the AIMSWeb curriculum-based measures to monitor student progress:

AIMSWeb is the most comprehensive of any of the progress monitoring tools that are available. They have everything from early literacy all the way through high algebra concepts, math, and now even problem solving. It is endorsed by the CDE [Colorado Department of Education] and by the National Center for Student Progress Monitoring.

The AIMSWeb curriculum-based measures are used weekly or bi-weekly to monitor the progress made by students in the PST process and evaluate the extent to which the students attain their academic goals.

The Problem Solving Team uses the assessment information provided by the AIMSweb reading prompts to evaluate student progress. After the first six-week period of intervening and progress monitoring, the Problem Solving Team reconvenes to review the initial plan. The PST determines if the intervention is being implemented with fidelity and examines the extent to which the student is responding to the intervention, demonstrated by the student’s progress towards attaining his/her previously set goals. The Problem Solving Team (PST) then determines if the student should continue with the intervention currently in place or receive a new intervention that may better meet his/her needs. If adequate progress has been made toward reaching the student’s end of year goal, the PST completes exit forms to document that the student is no longer in need of intervention and is performing at a proficient level. After a minimum of three
rounds of intervention and review, if adequate process is not made by the student the team will refer the case to an interdisciplinary team called the Child Study Team (CST). This team is discussed below.

**Tier 3: Intensive Intervention**

Tier 3 Intensive Intervention is intended for students with significant, chronic academic deficits or underachievement who are in need of the most intensive services available at the school. The purpose of Tier 3 interventions is to address the specific needs of students who have failed to respond to universal instruction (Tier 1) as well as targeted intervention (Tier 2) and have been referred for intensive intervention by the Problem Solving Team. Tier 3 interventions are delivered by trained specialists including interventionists, special education staff, service providers (such as speech pathologists, occupational therapists, or school-based therapists) outside of the classroom either individually or in small groups of fewer than five students. These individual or small group services are of increased intensity (i.e., given daily for extended periods of time) as compared to targeted interventions.

The Child Study Team (CST) builds on the work of the Problem Solving Team described above. The CST, which comprises many of the same members as the Problem Solving Team as well as additional specialized personnel such as speech pathologists, school-based therapists, school psychologists, and special education teachers, is a continuation of the Problem Solving process that is used
when students fail to respond to Tier 1 and 2 instruction and intervention. Susan Hundley, a school psychologist on a Child Study Team, explained:

When the PST has decided that they’ve used up all of their resources, have done several interventions, and feel like they really need more information about a student, we have a PST/CST combined meeting [with] the classroom teacher, and [often] the PST facilitator. We brainstorm. We review the interventions that have been done, the progress, and CST will say “We need more information about this… we want more information about that… we want to try this intervention… we want to try that intervention…” And at that time we would also decide if we want to pursue a special education evaluation.

At this time, the CST may recommend that the student be given a special education evaluation to determine whether or not a specific learning disability is present.

**Evaluating District Implementation at the end of the 2008-2009 School Year:**

**Challenges and Successes of Implementation**

**Challenges of implementation**

As described earlier, the Summerset steering committee, along with the central administration team, set two goals for district-wide implementation of Response to Intervention for the 2008-2009 school year: (1) for all staff to understand the Multi-Tiered Model of instruction and intervention and how the model works in each school, and (2) to have functioning Problem Solving Teams in each school. At the conclusion of the 2008-2009 school year, Kathy Davis and Ben Hamilton reflected upon the district’s progress toward attaining these goals as well as the challenges and successes of the first year of implementation. Mrs. Davis and Mr. Hamilton both felt that two challenges were faced during
implementation at the district level: challenges due to the urgency of implementation and logistical challenges. They also believed that the establishment of effective Problem Solving Teams at every school and the implementation of a systematic approach to addressing student needs were the two primary successes.

**Urgency of Implementation**

As discussed above, nationally mandated education acts such as No Child Left Behind (2000) and the Individuals with Disabilities in Education Act (2004) have led to changes in the manner in which schools serve students and address the needs of students at risk of academic failure (Fuchs, Fuchs, & Speece; 2002; Hollenbeck, 2007; Shaul & Ganson, 2005). Whereas schools relied on a discrepancy model to identify students at risk of academic failure in need of special education services for the past three decades, the Individuals with Disabilities in Education Act of 2004 forced schools to change the manner in which these students are identified and served. While the national mandates do not require the implementation of a Response to Intervention model, all schools were required as of August 15\textsuperscript{th}, 2009 to employ the use of Specific Learning Disability criteria to address the needs of students at risk of failure (CDE, 2009). However, “states like Colorado,” Ben Hamilton explained, “went a step further and said that schools must use a Response to Intervention model beginning in July of 2009.” In order to demonstrate how they intended to meet these requirements, school districts across the state of Colorado were required to submit a plan for
implementation by August 15th of 2008; the plan submitted by Summerset Public Schools involved the implementation of a Response to Intervention that incorporated the adoption of the Specific Learning Disability criteria through the use of Problem Solving Teams.

Ben Hamilton explained that, prior to the 2007-2008 school year, Summerset had focused its resources on its district-wide restructuring that created small by design magnet schools:

In a lot of districts, RtI implementation started 4 and 5 years ago, but Summerset at that time was really focused on the reinvention and developing small schools. It seems that RtI was put on the back burners for a while, so it hadn’t really taken hold here.

Because of their late start in implementing RtI and the impending deadlines to use the Specific Learning Disability criteria, Summerset’s district-level administrators such as Kathy Davis and Ben Hamilton felt rushed to make changes while still learning about the changes to be made. Kathy Davis explained:

A really pressing piece for us was the new SLD (Specific Learning Disability) criteria. In August of 2008, we were supposed to start implementing the new SLD criteria. However, as a state, Colorado was not very far along with Response to Intervention implementation, so the state allowed us another year [before full implementation]. We had last year (2008-2009) to get our teachers up to date on RtI: what it means; how Problem Solving Teams work; how data is collected; how to apply that data to the new SLD criteria; and how to progress monitor.

Mrs. Davis explained that the difficulties that district staff experienced during the 2008-2009 school year resulted from being required to employ a model they did not yet fully know or understand.
Being in awareness and implementation at the same time, like creating all of these materials and needing to be training at the same time, was extremely difficult. I don’t know that we really had all of the tools that we needed for those teachers while we were doing the trainings. From my standpoint, it often felt like we were scrambling at the last minute to get those materials ready for teachers, I think that we – the other Intervention Coordinator and I – worked really, really hard last year, and if that meant working ridiculous hours, we were here until 8 o’clock at night getting those things. That was hard.

Being in “awareness and implementation at the same time,” as Mrs. Davis described it, led to challenges that included creating professional development trainings for staff, creating new documents without having a trial period to revise before implementation. It also led to several logistical challenges that are discussed below.

**Logistical challenges**

Related to the challenges that arose during the rushed implementation process, district-level administrators also faced logistical challenges such as scheduling and credits earned towards graduation for high school students. Ben Hamilton shed light on one logistical challenge at the school and district levels:

How do we find the time in the day to really intervene with a kid who’s reading way below grade level? An example is math: how do we intervene with a kid who never really learned math and computation? They don’t get high school credit if they don’t take algebra or above, so if we take them out of an algebra class and do an intervention, they’re not earning credits towards graduation that they need. It’s probably meeting the needs that they have right now, but it’s not getting them to graduation. So how do we make sense of that? How do we both get them to graduation and get them the skills and keep high expectations on both sides? That’s a real trick.
Hamilton explained that finding the balance between meeting student needs when interventions were necessary while being able to help them to graduate from high school was difficult for the secondary sites in the district.

A second challenge faced by the district involved day to day scheduling of interventions and instruction. This issue is discussed below in the context of the day to day workings of school site implementation of Response to Intervention.

**Successes**

*Meeting goals*

Summerset set the goal of having functioning Problem Solving Teams at each school in the district by the end of the 2008-2009 school year. Ben Hamilton, described Summerset’s growth towards that goal

One of the goals we set was that every school would have a functioning Problem Solving Team and we met that goal. That’s huge! Just to get people to do things a little differently from how the CARE teams were designed. I think CARE team became a place for a frustrated teacher to vent. But I think we’re beyond that now. We’re really focused on the needs of the kids.

Kathy Davis confirmed that the district goal of having functioning Problem Solving Teams in each school had been met: “Our schools know what PST is and what it looks like. They have functioning Problem Solving Teams and that’s one of the overall successes for our district.”

*Having a systematic approach for serving students*

The 2008-2009 school year was the first year during which all of Summerset Public Schools employed a systematic, district-wide approach to data
collection and analysis. As discussed above, the district followed the Colorado Department of Education’s model for multi-tiered instruction, implementing a Problem Solving Team which evaluated and tracked student progress through quantitative data analysis. Staff in all of Summerset’s schools monitored the progress of all students and evaluated student learning in Tier 1 instruction by examining results of universal screening assessments, such as results of the Colorado Student Assessment Program (CSAP) and the Northwestern Evaluation Association Measure of Academic Progress (MAP). Teachers and administrators district-wide also began utilizing the AIMSweb progress monitoring tools to assess and evaluate student learning in Tiers 2 and 3 of the multi-tiered model of instruction and intervention. The establishment of these systematic procedures has provided Summerset’s teachers with a structure and process to evaluate students’ growth and needs. Ben Hamilton explained:

Prior to 2008, some schools had some good interventions happening, but hadn’t put into place a process or used the vocabulary of RtI; they didn’t have a mechanism for assessing kids, for monitoring their progress, or for talking about when students might be finished with an intervention. [RtI] gave them a way to look at and talk about student progress; to organize and systemize their work.

Kathy Davis agreed that the systematic approach to tracking and monitoring student progress adopted by schools in the district was a success.

I think that the whole progress monitoring piece with AIMSweb has been a huge undertaking and has been a huge success. Being able to use those charts and the data that come from the progress monitoring has been invaluable in [meeting the needs of students].
Teachers and administrators at the school level expressed similar feelings about the effectiveness and importance of having a systematic approach to examining student achievement. The challenges and successes faced at the school level will be discussed later in this chapter.

**Foothill Elementary**

**Reacting to student needs**

Foothill Elementary school is an Expeditionary Learning school within Summerset Public Schools. Following the reinvention of the district from 2002-2006, Foothill Elementary opened as a K-5th grade Expeditionary Learning school at the start of the 2006-2007 school year then expanded to a K-6th grade for the 2007-2008 school year. The school had fifteen full-time teachers, two part-time teachers, four paraprofessionals, three school support staff, two office secretaries, and one administrator (the school director, Adam Wright). At the end of the 2006-2007 school year, Foothill was ranked by the Colorado Department of Education (CDE) as a low performing school with CSAP scores far below both state and district levels in all subject areas. In 2006-2007 reading proficiency levels for grades three through five at the state level ranged from 64-71% and ranged from 41-54% at the district level. However, Foothill’s reading proficiency levels were 39% in third grade, 28% in fourth grade, and 20% in fifth grade. Similar proficiency levels were present in writing and math (see Figure 1, p. 127).

Based upon these low CSAP scores and other standardized test data such as the Northwest Evaluation Association’s Measurement of Academic Progress
(MAP), Foothill’s administrator and staff knew after the 2006-2007 school year that its students were in need of widespread intervention. This need was represented by the same inverted triangle or pyramid discovered at the district level as was discussed earlier in this chapter. School Director Adam Wright admitted, “When we had our gaps after the first year (2006-2007), I didn’t have anyone to blame but myself. We had some big gaps. We queried the data and about 30% of our students were proficient on any given variable.”

Jessica Thompson, a literacy intervention specialist at Foothill, explained that while the need for intervention was evident, there was no formalized process to address these needs:

We looked at our data to determine what our needs were and we had so many kids below grade level in reading that we needed to do something; some type of intervention to make things better. In the past [prior to 2008-2009], teachers recommended students for intervention work then we tried to match the data with the recommendations. [Intervention work] was based more on scheduling and when we could pull students than on need; it wasn’t based upon who were the lowest of the low students, the middle students, the high students. We pulled more by grade level than by data. It wasn’t research-based and I don’t think it showed the results we needed.

Adam Wright commented that at that time “it would have been easy to panic and start pulling [students out] left and right and we wouldn’t have known what to do. We had some level of intervention, but it didn’t necessarily produce gains.”

While the Problem Solving Team (PST) process was set for full implementation at the start of the 2008-2009 school year, Adam Wright worried that the PST would not be able to meet the needs of so many students at risk of failure. He explained:
Having a strong PST does provide somewhat of a safety net for our students at risk of failure. However, [with scores like ours], we couldn’t run 70% of our students through a Problem Solving Team. We had too many [kids below proficiency] and the feedback was that our staff wanted a Standard Protocol to address Tiers 2 and 3.

As a result of having less than 30% of students proficient in reading on the CSAP and no formal process for addressing the needs of the remaining 70% of students failing to attain proficiency, the director and staff created a more formalized process to meet the needs of students at risk of failure through the implementation of a Standard Treatment Protocol.

**Creation of the Intervention Leadership Team**

In early June 2008, a group of specialist teachers at Foothill began working on designing and implementing a Standard Treatment Protocol to meet the needs of struggling students. This group included three intervention teachers (including the researcher), one special education teacher, a former special educator who had moved to a district-level position, a speech pathologist, and a school psychologist. Previously each of these specialists had been working at Foothill to deliver a variety of services to struggling students. The two special education teachers worked with students who qualified for special education services in reading, writing, or mathematics; the special educator who had moved to the district-level position was Kathy Davis. The speech pathologist (Adie McHugh) had been working with students who qualified for special education services in speech and language. Jessica Thompson, a literacy specialist, had spent the last two years pulling small groups of students for additional literacy
support. Susan Hundley, the school psychologist, had been working with students who qualified for additional support for emotional disabilities or who were in need of special education assessment. The English as a Second Language (ESL) teacher (the researcher) had spent the last year working with students who spoke a language other than English as their first language.

Thus, each of these Foothill teachers had been delivering specialized services to struggling students; however, no formal process or structure had been in place to coordinate their work and services. This team began formally organizing their services and was henceforth referred to as the Intervention Leadership Team (ILT). In June 2008, the ILT began to design a Standard Treatment Protocol that was to be implemented at Foothill beginning in the 2008-2009 academic year.

**The Standard Treatment Protocol**

Whereas the Problem Solving Team approaches instruction and intervention needs of individual students on a case by case basis, a Standard Treatment Protocol (STP) is designed to meet the needs of groups of students by providing standardized interventions to students based upon predetermined criteria (Fuchs & Fuchs, 2006). A STP seeks to provide research-based, highly effective interventions to all struggling students identified through the use of a universal screening assessment that separates students performing at a proficient level from those who are not (Fuchs, Mock, Morgan, & Young, 2003; Vaughn et al., 2007). In an STP, struggling students identified by universal screening data
are grouped by need, in terms of specific skill to be addressed (e.g., reading comprehension) as well as magnitude of skill deficit. These groups of students then receive scientifically validated standardized interventions that are chosen to address a desired skill (Martinez et al., 2006). Progress and growth are monitored on an on-going basis and data are evaluated to determine if the intervention is successfully addressing student needs (Fuchs, Mock, Morgan, & Young, 2003; Vaughn et al., 2007).

**Foothill’s Standard Treatment Protocol for early literacy intervention**

The following section details the primary components of Foothill’s Standard Treatment Protocol model for addressing early literacy intervention. This section begins with an overview of the district-wide literacy program that was implemented during the 2007-2008 school year. Next, the section addresses the schedule designed by school director Adam Wright, with assistance from the Intervention Leadership Team, to provide supplementary literacy instruction for students at risk of academic failure. Then the section describes the rationale behind the Intervention Leadership Team’s choice of the specific intervention programs to be implemented at Tier 2 and Tier 3. A visual representation of Foothill’s Multi-Tiered model of instruction and intervention is provided in order to show each of the interventions occurring at each level of the Standard Treatment Protocol. The final section will explain the process followed by the ILT when assigning students to each of the interventions at Tiers 2 and 3.
The district-wide literacy program: Every Child a Reader (ECaR)

Foothill Elementary began using a prescribed reading program called Every Child a Reader (National Literacy Coalition, 2007) that was adopted district-wide in Summerset as of the 2007-2008 school year. The program, developed by the National Literacy Coalition (NLC), was designed with a specific structure and schedule based upon a 90 minute literacy block. This block begins with a 15-minute “demonstrated reading” lesson that is taught to the whole class and addresses a particular reading strategy. Next, the teacher works with homogeneously grouped students on specific skills in a “differentiated reading” lesson. The teacher then rotates through the other homogeneously matched groups for the remainder of the literacy block time at 15-minute intervals. Each of these differentiated reading lessons is designed to address the specific needs of the small group. While the teacher works with each of the small groups, the remainder of the class works on “directed reading” activities. Each of these activities is tailored to the needs of the individual or small group, delivered through stations or centers, rotates on 15-minute intervals, and involves a variety of different lesson or activity types.

The “Double Dose” literacy schedule

One of the primary goals in creating the Standard Treatment Protocol was to ensure that all struggling students received additional literacy instruction in Tier 2 and 3 interventions, rather than having Tiers 2 and 3 replace mainstream classroom instruction. To clarify, students in need of reading intervention
received instruction both within the mainstream classroom (Tier 1) as well as outside of the classroom in a small group (Tier 2 and 3). Therefore, students received a “double dose” of literacy instruction. This was in line with Response to Intervention research stating that Tier 2 and 3 interventions should supplement Tier 1 instruction for students in need of additional support (Justice, 2006; Martinez, et al, 2006; Wright, 2007). In order to accomplish this, the school’s schedule as well as individual classroom schedules and intervention schedules, had to be coordinated. While students in kindergarten did not receive the second dose of literacy instruction, students at risk of academic failure in reading in grades 1 through 6 received an additional second dose of literacy through small group, pull-out instruction delivered by intervention specialists. To coordinate this, a specific schedule was created that involved precise coordination between mainstream classrooms and intervention groups.

As previously mentioned, Foothill Elementary is an Expeditionary Learning (EL) school. While the philosophy of the school is not within the purview of this dissertation, one element of Expeditionary Learning must be mentioned to understand the complexity of creating a school-wide schedule. In simplified terms, an Expedition is an integrated unit of study based upon science or social studies standards that examines a topic in great depth through numerous learning experiences. According to the EL model, the core practice benchmarks in learning expeditions include:
Implementing learning expeditions across the school; designing compelling topics and guiding questions; designing products and linked projects; incorporating fieldwork, local expertise, and service learning; and producing and presenting high quality student work. (Expeditionary Learning Schools Core Practice Benchmarks; 2003)

Because the expeditions at Foothill were planned in multi-grade level blocks, certain classrooms and grades collaborated on common expeditions while others worked alone. For example, the kindergarten class worked on its own expedition while first and second grade classes shared an expedition; third and fourth grade classes shared an expedition, as did fifth and sixth graders. Based upon expedition work, literacy blocks were assigned at different times throughout the day for kindergarten, first and second, third and fourth, and fifth and sixth grades.

In order to pull students out of class to receive supplementary literacy instruction, director Adam Wright spread literacy blocks for the grades over the course of the day, rather than have school-wide literacy block in which all students across all grade levels received literacy instruction simultaneously. This allowed for students to be pulled from their classes for additional instruction during their literacy block, rather than during other times of the day such as during math instruction. Prior to configuring this schedule, Adam Wright admits that he did not see the importance of a school schedule in the scheme of a Response to Intervention model:

Our district Title 1 Coordinator suggested to me last year [2007-2008] that I create a school-wide schedule. I was just given good advice and as a team we wrote a literacy schedule where there were common literacy blocks across teams, but not a common school-wide literacy block. It sounds so simple, but if there wasn’t a schedule like this, other school
directors were really open that it was an uphill battle for the rest of the year. For the schedule, there need to be common literacy blocks across multi-age teams that match your data set. We found that K-2 needed a common block, then 3-4, and finally 5-6. Those were the three different literacy blocks around which we based the rest of the school schedule.

In retrospect, Wright stated that this was a key element in developing a functioning Standard Treatment Protocol.

Once the whole school schedule was established, the structure of the mainstream classroom literacy program (Every Child a Reader) was coordinated with the Tier 2 and 3 intervention schedules. As discussed above, each literacy block in the ECaR program begins with a 15 minute whole-class “demonstrated reading” lesson. At Foothill, many teachers taught this whole-class lesson at the beginning of the 90 minute literacy block; however, teachers were given the freedom to determine the best time at which this lesson fit into the daily schedule, if this designated time did not best meet the needs of their students. Each grade level team (kindergarten through second, third and fourth, fifth and sixth) had a 90 minute literacy block at a specific time of day. Teachers typically began this literacy block with a demonstrated reading lesson, followed by delivering differentiated reading lessons to their lowest reading group (the group in greatest need of intervention). After the 15-minute differentiated reading lesson, this group of students left the mainstream classroom to receive an additional hour of targeted or intensive intervention from a literacy specialist or special education teacher. This allowed for the students at risk of failure in reading to receive a full 90 minutes of direct literacy instruction every day. While the times for
“demonstrated reading” lessons may have varied from the schedule in the table below, this schedule is illustrated in the following Table:

Table 11

Foothill’s School-Wide Literacy Block Schedule

<table>
<thead>
<tr>
<th>Grades</th>
<th>Time</th>
<th>Literacy Block</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8:00 – 9:30</td>
<td>Literacy Block</td>
</tr>
<tr>
<td></td>
<td>9:30 – 11:00</td>
<td>Literacy Block</td>
</tr>
<tr>
<td></td>
<td>11:30 – 1:00</td>
<td>Literacy Block</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Kindergarten-Second</th>
<th>Demonstrated Reading</th>
<th>Differentiated Reading</th>
<th>Literacy Intervention “Double Dose” Kaplan or Lindamood Bell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third/Fourth</td>
<td>Demonstrated Reading</td>
<td>Differentiated Reading</td>
<td>Literacy Intervention “Double Dose” Kaplan or Lindamood Bell</td>
</tr>
<tr>
<td>Fifth/Sixth</td>
<td>Demonstrated Reading</td>
<td>Differentiated Reading</td>
<td>Literacy Intervention “Double Dose” Kaplan or Lindamood Bell</td>
</tr>
</tbody>
</table>

Choosing early intervention programs for literacy

For two days in June 2008, the Intervention Leadership Team conducted research to find specific literacy intervention programs to meet the needs of the student population at Foothill. Jessica Thompson, one of the literacy intervention specialists on ILT, described the process of researching intervention programs:
We started in spring [2008] when we looked at our data to determine what our needs were. We looked at the “What Works Clearinghouse” website [U.S. Department of Education, 2009] and reviewed all of the different [early literacy intervention] programs online and looked at what the research said about results. We made charts to write out what [skills] each program was designed to help and what the needs of our kids were based on [CSAP, MAP, and PALS] data. We looked at which of the research-based programs would best fit the needs of our kids for reading and chose the two that best fit our school.

Thus, the ILT, along with school director Adam Wright, examined student achievement data in reading on the CSAP, PALS, and MAP assessments and matched the deficits of the student population with the strengths of the research-based early literacy interventions. Then they chose two programs to implement in Tiers 2 and 3 of the school’s Standard Treatment Protocol: the Kaplan SpellRead (Kaplan, 2009) program for Tier 2 and 3 and the Lindamood Bell “Seeing Stars” program (Bell, 1997) for the highest need students in Tier 3.

Early in this process, director Adam Wright requested advice and support from the district administration in making programming decisions. He described it this way:

At one point I was trying to lobby the district to just give me a program because it was the only one I knew, and I’m glad I got told ‘no’ because in the end, we researched what we chose and we chose a great one. We really knew we wanted it and we were therefore invested.

After having chosen the programs and receiving district funding for implementation, all intervention specialists and special education teachers received ten days of training in the Kaplan SpellRead program as well as five days of follow-up coaching and observation by regional Kaplan training personnel. The special education teacher had already been trained to use the
Lindamood Bell program so no additional training was necessary for the implementation of that program. Both programs were put into practice to meet the needs of students at risk of failure in August 2008.

**Foothill’s Multi-Tiered Model of Instruction and Intervention**

Once the Tier 2 and 3 Standard Treatment Protocol interventions had been selected, Foothill’s Multi-Tiered model of instruction and intervention was complete and included all instructional practices in place at the school. The tiers of instruction and intervention are illustrated in Figure 6. As discussed above in the description of Tiers 1, 2 and 3, all students at Foothill received Tier 1 instruction in the mainstream classroom. Targeted interventions were delivered to students in need of supplemental instruction and intervention through Tier 2. Students with the most severe needs were served through instruction and intervention provided in Tier 3.
Figure 6. Foothill’s Multi-Tiered Model of Academic Instruction and Intervention

Assigning students to intervention groups

The following flowchart illustrates the process followed by the Intervention Leadership Team to identify and attend to student needs. This process began in June 2008 at the initial meeting of the ILT and continued through the 2008-2009 school year. Each step in the process will also be discussed below.
Figure 7. Intervention Leadership Team’s Process for Assigning and Serving Students

The team began the process of assigning struggling students to intervention groups by examining the reading proficiency data for the entire Foothill student body. These data included the Colorado Student Assessment Program (CSAP) results from March 2007 and 2008; the Northwest Evaluation Association (NWEA) Measure of Academic Progress (MAP) data from January and May 2008; and the Phonological Awareness Literacy Screening (PALS) data from May 2008. The ILT created a list of all students falling below proficiency...
on each of these three assessments. Table 12 below illustrates the data sources available for each grade level; the PALS assessments are used in kindergarten through third grade, MAP is given to students in second through sixth grades; and CSAP is given to students in third through sixth grades.

Table 12

*Assessments used to Evaluate Student Achievement*

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Assessment(s) Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>PALS</td>
</tr>
<tr>
<td>First</td>
<td>PALS</td>
</tr>
<tr>
<td>Second</td>
<td>PALS, MAP</td>
</tr>
<tr>
<td>Third</td>
<td>PALS, MAP, CSAP</td>
</tr>
<tr>
<td>Fourth</td>
<td>MAP, CSAP</td>
</tr>
<tr>
<td>Fifth</td>
<td>MAP, CSAP</td>
</tr>
<tr>
<td>Sixth</td>
<td>MAP, CSAP</td>
</tr>
</tbody>
</table>

The ILT created the following worksheet to plan for targeted (Tier 2) and Intensive (Tier 3) interventions:
Table: 13

**Foothill Worksheet for Planning Intervention Grouping**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Identified Students: Below PALS, MAP, or CSAP benchmark</th>
<th>Total Number of Identified Students per Differentiated Reading Block</th>
<th>Number of Intervention Slots Available</th>
<th>Identified Students: Below Targeted Intervention Cut-off Score</th>
<th>Number of Intervention Slots allotted per grade level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>TBD</td>
<td></td>
<td></td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; Grade</td>
<td>16</td>
<td>39</td>
<td>20</td>
<td>PALS Cut-off = 61 with teacher input</td>
<td>8</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Grade</td>
<td>23</td>
<td></td>
<td></td>
<td>PALS Cut-off = 16 with teacher input</td>
<td>12</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; Grade</td>
<td>20</td>
<td></td>
<td></td>
<td>PALS Cut-off = 38 with teacher input</td>
<td>8</td>
</tr>
<tr>
<td>4&lt;sup&gt;th&lt;/sup&gt; Grade</td>
<td>16</td>
<td>36</td>
<td>15</td>
<td>PALS Cut-off = 64 MAP Cut-off = 20&lt;sup&gt;th&lt;/sup&gt; %tile CSAP = Unsat. with teacher input</td>
<td>7</td>
</tr>
<tr>
<td>5&lt;sup&gt;th&lt;/sup&gt; Grade</td>
<td>14</td>
<td>25</td>
<td>20</td>
<td>MAP Cut-off = 20&lt;sup&gt;th&lt;/sup&gt; %tile CSAP = Unsat w/ teacher input</td>
<td>11</td>
</tr>
<tr>
<td>6&lt;sup&gt;th&lt;/sup&gt; Grade</td>
<td>11</td>
<td></td>
<td></td>
<td>MAP Cut-off = 20&lt;sup&gt;th&lt;/sup&gt; %tile CSAP = Unsat. with teacher input</td>
<td>9</td>
</tr>
</tbody>
</table>

*Kindergarten was excluded from this process due to the lack of data available prior to their enrollment in the school.*
As was expected from previous years’ CSAP data, the number of students in need of intervention exceeded the number of spots available in intervention groups. The ILT calculated the number of spots at each of the grade levels by multiplying the number of teachers available to teach an intervention during each literacy block by the number of students that could be served in each group. During two of the three literacy blocks, four interventionists were available to provide services; during the third literacy block, only three interventionists were available. Both Kaplan SpellRead and Lindamood Bell “Seeing Stars” allow a maximum of five students per intervention group. As Table 13 illustrates, student needs were not evenly distributed across all grade levels; slots per specific grade level were then calculated based upon the approximate percentage of the whole multi-age group represented by each specific grade level. For example, in the kindergarten through second grade multi-age group, a greater number of second graders were in need of intervention than first graders; therefore, second grade received more intervention student slots than first grade.

After determining the number of available slots for students to receive literacy interventions, the group assigned students to specific intervention programs. To determine which students to assign to which intervention, the Intervention Leadership Team examined the outcomes of each of the reading interventions along with the needs of students. The Lindamood Bell program was targeted for students in need of the most remedial intervention and was therefore used as a Tier 3 intervention. The Kaplan SpellRead program was used to address
the needs of students receiving both Tier 2 and Tier 3 interventions: students needing more intense intervention received Kaplan 5 days per week (Tier 3) while students needing less intense intervention received Kaplan 3 or 4 days per week (Tier 2). Students were then matched to each of the interventions based upon the intensity of their needs as demonstrated by their assessment scores on the three standardized assessments. At each grade level block, one group received the Lindamood Bell Seeing Stars intervention and the remaining groups received Kaplan SpellRead. The students in the Kaplan SpellRead program were grouped by their scores on each of the available assessments; students with the most similar needs were placed in groups together.

As discussed above, approximately 70% of students at Foothill were failing to attain grade level proficiency. A lack of school resources, including student materials as well as staff available to provide out of classroom targeted and intensive interventions, limited the number of students who could be pulled from class to receive targeted and intensive interventions. The needs of these students were therefore addressed in the mainstream classroom by the general education teacher.

Once students were placed in intervention groups, they were assessed again using the AIMSweb curriculum-based reading measure. Using the AIMSweb progress monitoring tools described above, students in all intervention groups were given initial benchmark assessments. The benchmark assessment was a reading fluency test given by the interventionists three times per year to all
students in Tiers 2 and 3. Students were given three reading prompts at their
grade level to read aloud for one minute. Students then read each prompt to the
teacher who tracked the number of words read correctly and the number of errors
made during the one minute period. The median number of words read correctly
and number of errors made per minute during these three one-minute prompts was
recorded as the student’s initial benchmark score. To determine a student’s
independent reading level, the same procedure occurred at each grade level until
the student was able to read enough words correctly per minute to fall into the
“average” range for a particular grade level. “Average” is defined by AIMSweb
as falling between the 25th and 75th percentile for words read correctly in one
minute. Intervention teachers compared the words read correctly by the student
on each grade level assessment to the nationally-normed values published by
AIMSweb. Once this level was reached, the intervention teacher was able to
determine the appropriate level at which the student would be progress monitored
for the remainder of the school year.

Using the student’s initial score on the independent level reading prompt
along with the nationally-normed aggregate data provided by AIMSweb, the
intervention teachers set goals for growth for each student. Goals were set by
multiplying the number of weeks in intervention by Rate of Improvement (ROI)
rates for students to attain adequate levels of growth over the course of the school
year as determined by AIMSweb. This number was then added to the student’s
initial reading score to calculate his/her target goal for the end of the school year.
The progress of students in Tier 2 was monitored using AIMSweb every two weeks throughout the school year. Students in Tier 3 were monitored weekly.

To examine and evaluate the progress of students receiving interventions the Intervention Leadership Team (ILT) met each week for one hour on Wednesdays. At the start of the school year, the team created a calendar to review student data regularly; each intervention teacher was scheduled to present his or her data every six weeks if teaching a Tier 2 intervention or every three weeks if teaching a Tier 3 intervention. The team chose to monitor the progress of students in Tier 3 interventions more often due to the severity of their needs; if students were not responding to instruction, the team felt that 6 weeks was too long to wait to intervene further. At these data meetings, teachers examined students’ progress looking at the AIMSweb measurement data and determined if students were on track to meet their end of year goal for growth. If progress was sufficient, meaning that the student’s growth rate was at or above the necessary Rate of Improvement (ROI) to reach his/her goal, the intervention would continue without change. If progress was not sufficient, further interventions would occur.

When student progress was not sufficient to attain end of year goals, the Intervention Leadership Team (ILT) researched and brainstormed interventions to supplement instruction and intervention. The ILT and PST shared a collection of books (see Appendix 5) to research interventions. In addition to these books, members of ILT researched need-specific interventions online using websites such as What Works Clearinghouse (Institution of Education Sciences, 2009) and
Intervention Central (Intervention Central, 2009). Once interventions were found that were explicitly designed to meet the specific need of the struggling student, the intervention was documented in AIMSweb, was implemented by the intervention teacher, and the student’s progress continued to be monitored. The progress of this student was then examined at the next data meeting for that intervention teacher (three weeks later for Tier 3, six weeks later for Tier 2) and the same procedure would be followed again: progress would be examined; if sufficient progress was made the intervention would continue; if progress was inadequate the team would again research interventions to address the student’s need; the intervention would be implemented for another 3 or 6 week time period; and progress would be evaluated again. If, after three data analysis periods, the student failed to respond to any interventions and show increased growth rates, he/she would be referred to the Problem Solving Team (PST) for further evaluation and discussion (see PST process above).

**Challenges of implementation at Foothill**

Staff at Foothill described two challenges faced during the initial year of implementation of the school Response to Intervention model. First, participants explained that the structure of the RtI model led to communication challenges between components of the model as well as between staff members at the school. Secondly, participants felt that the rigidity of the school-wide schedule led to challenges in meeting the needs of students. These challenges are discussed here.
Structural hindrances to communication

The structure of Foothill’s Response to Intervention model led to difficulties in communication between staff members involved in each of the RtI components. As discussed earlier, Tier 2 and 3 Standard Treatment Protocol interventions were delivered by a group of intervention teachers that comprised the Intervention Leadership Team (ILT). Two key components of Tiers 2 and 3 were the Problem Solving Team (PST) and Child Study Team (CST). While the PST and CST overlapped both in terms of function as well as group members the same was not true of the ILT. As a result, communication between the Standard Treatment Protocol, managed by the ILT and the Problem Solving components (CST and PST) was ineffective. Laura Rossi, classroom teacher and PST facilitator, felt that this was “a flaw in [the] building’s structure.”

We have really compartmentalized knowledge right now. I have some knowledge of this PST piece. Jessica has some knowledge of the Kaplan [Standard Treatment Protocol] piece. Deb has some knowledge of the special education piece. Thankfully, we all work together well and make that work and go find each other because we have a staff that is super dedicated to all of our kids. But that’s not something that would necessarily happen by default. It would be nice to have the structures in place to have that happen in an easier way. It would be good if there were one person, who was not a classroom teacher, who was able to oversee the caseload of kids receiving intervention for all reasons… one person who has the knowledge of all of the children in the building receiving and intervention.

Laura Rossi’s opinion was shared by other teachers. For example, Jessica Thompson was able to explain the purpose of the Problem Solving Team.

However, she said “I wish I had better knowledge of what PST does. So that’s a
big weakness of mine.” And, when asked about the Child Study Team she admitted, “I have no idea what that is. I’ve heard it mentioned, but I literally don’t know what it is.”

Similar to the lack of communication between components of the RtI model, classroom teachers and interventionists also felt disconnected from one another and from each other’s work. School director Adam Wright acknowledged this situation and noted that “we didn’t really know what each other were doing in classroom groups versus interventions.” Wright, as well as Jessica Thompson (Intervention Specialist), Christine Johnson, Amy Wheat, and Ashley Berger (classroom teachers) believed that increased communication between classroom teachers and intervention teachers would lead to greater student achievement.

Amy Wheat explains:

I tried to regularly, even if it was informally, just say “Hey, what do you think about how so-and-so is doing?” or “What do you think about this?” or “Can I get your opinion?” I think that [when] you can collaborate and work together, you’ll be better able to meet that child’s needs. So I think you have to just keep communication open.

Christine Johnson agreed that better communication between classroom and intervention teachers would have led to students’ needs being more fully met:

It would be helpful to sit down with the interventionists every once in a while and touch base and figure out “what are you seeing from this person [student] and what do you think the next priority is with this child?” And figure out more of a focus.

Jennifer Austin also felt that communication could lead to more effective reading instruction at the school:
I think it could be more effective if the classroom teachers and whoever is pulling those groups communicated more and you can reinforce those skills in the classroom and what’s happening in those groups instead of [it being] just a guessing game.

As an intervention specialist, Jessica Thompson also stated that “communication with the classroom teachers and how we could better support our kids is a challenge.” Thompson pointed out that there were no pre-existing structures in place to support communication. “What I think we were missing,” she said “was some kind of forum where there could be communication. There needed to be some kind of communication and we didn’t have that.”

In an effort to improve the Response to Intervention model at Foothill, director Adam Wright and interventionist Jessica Thompson distributed an anonymous survey asking teachers what they felt were the strengths and weaknesses of the model. One teacher mentioned that one area that needed improvement was communication:

We need more communication between classroom teachers and RtI teachers [because] I would like more opportunities to reinforce what the students are working on in their RtI groups with classroom reading groups.

Because of the concerns presented by classroom teachers and interventionists throughout the year, a greater focus will be placed on communication and transference (using skills learned either in class or in an intervention group across a variety of different contexts) for the 2009-2010 school year. Adam Wright commented that

One lesson we’ve learned is that we need to continue to work on that transference piece; that’s where the magic happens. We need to make those strategic efforts and that’s part of our 2009-2010 school
improvement plan; next year we’re really targeting that conversation and transference piece.

When asked for suggestions as to how to improve communication and transference on the survey conducted by Thompson and Wright, teachers recommended weekly or bi-weekly emails, weekly reports, weekly data discussions, and joint meetings between grade level teams and the Intervention Leadership Team to discuss student achievement and coordination of lesson planning.

**Rigidity of the Schedule**

While the school schedule was created specifically to provide a second dose of literacy for struggling students, it contributed to logistical dilemmas for classroom teachers. As discussed earlier, a school-wide schedule was created with literacy blocks for different grade level teams spread throughout the day. Within the 90-minute literacy blocks, most teachers taught a 15 minute whole-group lesson then pulled small groups of students who rotated every 15 minutes for the remaining 75 minutes of the block. Despite the flexibility allowed by Adam Wright for the placement of the demonstrated reading lesson within the school day, the structure of the whole school schedule required that all students leaving for intervention groups meet with their classroom teacher for the first rotation of the small group reading instruction. Due to the large number of students in Amy Wheat’s classroom, for example, the rigidity of the school schedule meant that she was not always able to provide the instruction needed by her students.
I had nine students leaving the room, and that was too many students for one group, in my opinion. And those nine students had very different needs, so I didn’t always pull them as one group, which maybe was bending the rules a little bit, but logistically, the schedule was so tight that I couldn’t start pulling sooner. I would try to get one group in before they left and I wouldn’t meet with all of them. Not all of them would be met with two times a day (in class and with the intervention teacher) because it was hard to make that happen with our schedule.

Ms. Wheat addressed for this dilemma by attempting to meet with these nine children on alternate days but still struggled to do so effectively. She felt that this conflict put her into a difficult situation when trying to meet the needs of her students, especially those with learning difficulties.

The Standard Treatment Protocol schedule negatively impacted classroom instruction in additional ways. For example, when the schedule became irregular or inconsistent, teachers struggled to maintain classroom routines and teach effectively. Ashley Berger explained:

When the schedule was on and kids were getting pulled out at the same time they needed to be pulled out and returned at the time they needed to be returned, it worked really well. But then with the CSAP testing and all the things that took the second-dosers’ time away from those groups, it really had an adverse effect on my classroom because the kids that were not used to being in my room had to follow the same rules that everyone else did and they were really disruptive to the other kiddos. Keeping that consistency, I think, is key.

Jennifer Austin and Christine Johnson also expressed frustration with inconsistencies in the schedule. As an intervention teacher, Jessica Thompson also felt that inconsistencies “really negatively affected a kid’s progress.”

As mentioned above, a survey was distributed at the end of the year to give teachers the opportunity to voice their concerns and present ideas about the
implementation of the Response to Intervention model. Of the 13 teachers surveyed, six expressed frustration with the schedule. One response articulated that “timing and scheduling was stressful,” while another commented that “staying super consistent with pulling those kids is important” and that “at times it was difficult to know what kids were meeting with whom and on what days.”

Despite the difficulties presented by inconsistencies in scheduling, however, all teachers seemed to feel that these inconsistencies were inevitable. The following comment made by Jennifer Austin was typical: “It’s tricky when there are other things involved, like when there’s CSAP testing [or] at the end of the year, there were so many things going on that it was just inconsistent. So that was hard, but it was also sort of like, what can you do about that?”

**Successes**

Participants in this study described three successes experienced during the first year of implementation at Foothill. First, participants agreed that the needs of students were more effectively met through the multi-tiered model of instruction and intervention than had been the case prior to implementing the model. Second, the participants felt that having a systematic structure in place to evaluate and address student data provided a framework to better meet the needs of struggling students. Third, all participants commented on the commitment, motivation, and dedication of the staff to meeting the needs of all students. These three successes will be discussed below.
Effectively serving students

While participants mentioned challenges faced during implementation of the Response to Intervention model, they felt that its most successful aspect was providing students with the services they needed to attain proficiency. The successful manner in which students were effectively served by the Response to Intervention model as a whole was discussed by every participant in this study and was also mentioned repeatedly on the survey. Participants believed that students were effectively served for two primary reasons: first, through proper grouping as a result of having implemented a systematic approach to data analysis, and second due to the “double dose” of literacy instruction received by struggling students.

Student growth

All participants agreed that the greatest success of this endeavor was the improved academic achievement of the students both in test scores (CSAP, MAP, and PALS) as well as in self-confidence. The quantitative data will be discussed in greater detail in Chapter 5; however, classroom teachers, intervention specialists, and the director all felt that significant academic growth occurred throughout the school. The school director, Adam Wright, put it this way:

Mid year, in third through sixth grade, we were seeing about a 5-7 percentile point gain [on the Northwestern Evaluation Association Measure of Academic Progress] and on every report I’ve looked at anecdotally, the trend lines look to be even higher than that. Those are national percentile points, so that’s huge!

Amy Wheat, a second grade classroom teacher, commented that
Reading levels went up for most kids who participated. [On] PALS data and from running records through MARA, most kids showed quite a few gains. And of course through progress monitoring tools, we could see improvement.

Jessica Thompson also saw improvements in student achievement: “It’s just phenomenal to see some of the kids and how far they grew; that would be one of our biggest successes for sure.” School director Adam Wright also pointed out the steady growth he believed students were making on the Colorado Student Assessment Program (CSAP) represented in Figure 8 below.

![Graph](image1.png)

**Figure 8.** Colorado Student Assessment Program (CSAP) Proficiency Levels for Foothill Elementary School (2007-2009)

Classroom teachers and interventionists commented on the growth they noticed in their students’ self-confidence, particularly in the area of reading. Ashley Berger noticed the positive impact on her students’ confidence and enthusiasm which she felt resulted from their participation in intervention groups:

> The kids were building a stronger sense of self-confidence. They were becoming more comfortable with their reading abilities. They were happier, I think. They were excited to go to groups. They wanted to go to groups. They were constantly watching the time, asking “is it time yet? Is it time yet? Can I go? Can I go? Can I go?” So I think their excitement...
level is something to be noted. They were happy about it. They felt comfortable and safe and so their confidence rose.

Amy Wheat had similar experiences with one of her students:

For some kids, I definitely saw a confidence change. Andrew Costigan, for example: I really noticed that he was never willing to read in front of the whole class. And after he started meeting in a group, I remember seeing him start volunteering to read. That was really, really cool to see that confidence growth.

Every teacher participant provided positive accounts of groups or individual students whose confidence improved as a result of RtI.

In addition to the comments made by participants in this study, when asked about the successes of the intervention model on the surveys, one teacher commented that his/her “sixth graders made incredible growth that would not have happened otherwise.”

* A systematic approach *

As discussed above, district-level administrators such as Kathy Davis and Ben Hamilton believed that the implementation of a systematic approach to evaluating student achievement and providing intervention to those not achieving at grade level helped teachers in Summerset to better address the needs of struggling students. Foothill school director Adam Wright also felt that adopting a systematic Response to Intervention model gave teachers a process to organize their work with students in need of intervention. He explained,

Having a strong process was really good in that teachers got more data-driven; that was a huge step for us. We analyzed data, we chose our kids [for interventions] well, and we matched them to an intervention for the year. It’s been huge, then to see our kids grow as a result.
Wright, along with other participants at Foothill, believed that this process helped teachers focus more closely on the specific needs of intervention groups and individual students. After describing the detailed steps taken by the Intervention Leadership Team (ILT) to analyze data, deliver interventions, and track student progress, Jessica Thompson, an intervention specialist at Foothill, explained,

One of our biggest successes in implementing Response to Intervention was our implementation of the systematic process. We started using data to form groups and monitored their progress throughout the year. The progress monitoring was really successful. Taking the time to use the data, which I never would have said before because I’ve never been a data person, but how critical that was to the entire process really made this year successful.

Laura Rossi agreed

I think the biggest success this year was how we were really looking at individual students in terms of individual skills and data. We’re no longer saying ‘this kid is a slow reader’ or ‘this kid is special ed’. I think [the process of analyzing data] is just enabling us to meet a kid’s really specific needs without ending up putting them in a program that doesn’t meet their needs; it’s about finding the right intervention for the child. The focus on the individual child is our major success.

When asked if she believed that the RtI implementation was effective, Jennifer Austin (a classroom teacher at Foothill) stated that,

Kids’ needs were identified and were receiving support that might not always have been available in the classroom. Just that there is now a structure in place and a process for identifying and working with kids made the implementation successful.

School psychologist Susan Hundley believed the use of data and the process for evaluating and monitoring student achievement allowed teachers to more accurately determine which students needed interventions. She explained:
A lot of kids used to go without interventions or special education that really needed them because they didn’t qualify for special education. With the Standard Protocol that Foothill has been implementing, a lot of the kids have seen success that might not have seen success otherwise. Now I think that teachers are really good at identifying interventions and collecting data. With this model, I feel like there have been a lot of successes.

Through the eyes of the participants, Foothill’s Response to Intervention model successfully addressed and met the needs of students at risk for academic failure. In the next chapter the effectiveness of the model in raising reading achievement will be evaluated quantitatively.

**Staff dedication and commitment**

Staff dedication and commitment to meeting the needs of all students in the school was overwhelmingly present in interviews and staff surveys. District level administrators, the school director, classroom teachers, as well as specialist teachers all commented upon staff devotion in one manner or another. These comments addressed the hard work of staff at all levels of the school, including the director, classroom teachers, and specialist teachers.

Numerous times throughout his interview, director Adam Wright commented upon the strength and skills of his staff as well as their devotion to the students at the school. When asked why Foothill had been given the opportunities to implement interventions beyond the scope of the district level goals, Wright explained

We have had the chance to really push the envelope as a result of some very strong hires on the Intervention Leadership Team. In the last two years we’ve really piloted some of the most cutting edge [interventions] in
the district because of our staff... We have had just a miraculous skill set, including all of our ILT members, our PST facilitator, our school psychologist, our specialist teachers, and our special education teacher. I mean, it’s a unique skill set on the team we have.

The strength of the staff, Wright believed, was one of the major factors supporting the successful implementation of Response to Intervention at Explore.

In addition to Wright’s comments on the dedication and commitment of the staff to the implementation of Response to Intervention, classroom teachers and specialists made similar observations. For example, in addition to her comments above about the willingness of the staff to communicate despite the difficulties they faced in doing so, Laura Rossi noted that “as a staff, people really see the benefit of and are really on board making changes and following this RtI system.”

Related to the devotion of the staff, participants such as Adam Wright and Christine Johnson asserted that the staff of Foothill felt a sense of “shared ownership” of the students at the school. Wright commented

We’ve really raced from where there was initially a bit of an “us versus them” feeling between classroom teachers and intervention teachers to a point where now there’s really a sense of shared ownership of the students.

Classroom teacher Christine Johnson made a similar observation:

I think it’s important for the whole staff to see that all of these kids belong to us. So as a team we ask, how are we going to move the ones that aren’t proficient to a proficient level? I worked at another school were teachers said things like “these are my kids and I’m going to be responsible for my kids – period.” But I think that’s another way that we’re successful at the school because we do have such a different outlook.
Laura Rossi also believed that “some of the successes we’ve had have been dependent upon the commitment of this particular staff and the cohesiveness of this staff.”

District Response to Intervention Coordinator Kathy Davis explained that the commitment of the staff and director to meeting the needs of the students was noticed by district personnel outside of the school as well.

I am unbelievably grateful and super proud of Foothill! Super proud! The entire staff is dedicated to making this happen. Even at times when things were not clear and there was frustration, they weren’t going to give up. They kept moving forward; they are so much further along than our schools in the district. They were really good about letting the other Intervention Coordinator and me push them forward. Their school director and everyone in their school kept saying “we’re going to keep learning and how to do this even better.” I’m so proud of them!

Just as the director commented upon the importance of a committed and dedicated staff, district-level administrators also emphasized the importance of the school director in the success of RtI implementation and the level of commitment shown by school director Adam Wright. Kathy Davis also explained that “the key to success in implementing RtI is the director. There has to be strong leadership in a school.” Mrs. Davis also explained that “directors like Adam Wright, who understood the impact of the work they were doing were the best to work with and saw the most gains.” The district-level Student Services Coordinator, Ben Hamilton, agreed that “buy in from school directors or principals is critical” to the success of RtI implementation. Jessica Thompson, one Foothill Elementary School’s Intervention Specialists, remarked that throughout the entire RtI design
and implementation process, “Adam Wright was extremely supportive of our efforts, which is important, because you have to have a supportive staff and you have to have a supportive director.”

**Summary**

Chapter 4 examined the process and procedures followed in designing at implementing the Response to Intervention model at Foothill Elementary School within the confines of Summerset Public Schools. The experiences of the participants were also discussed for the purpose of shedding light on the challenges and successes encountered throughout the implementation process. Chapter 5 will quantitatively evaluate the impact of this model on raising reading achievement scores of students at Foothill Elementary after its first year of implementation. The final chapter of this dissertation will bring together the two forms of research for the purpose of providing a complete picture of the first year of RtI implementation at Foothill Elementary School. Chapter 6 will also include suggestions for successful implementation of Response to Intervention at other sites.
Chapter 5 – Quantitative Results

Four posttest variables were used in this analysis. The first variable was the Phonological Awareness Literacy Screening (PALS) summed score from spring of 2009 for first grade; the second variable was the Phonological Awareness Literacy Screening (PALS) summed score from spring of 2009 for second and third grades; the third variable was the Colorado Student Assessment Program (CSAP) reading summed score from spring of 2009; and the fourth posttest variable was the Northwestern Evaluation Association’s Measurement of Academic Progress (MAP).

As discussed in the methods chapter of this dissertation, the school at which this study took place assessed students in different grade levels using three different assessments. Students in kindergarten through third grade were assessed using the PALS; students in grades 2 – 6 were assessed using the MAP; and students in grades three through six were given the CSAP. For the purpose of this regression discontinuity analysis, pre- and posttest data for grades one through three relied upon the PALS assessment; pre- and posttest data for grades four through six relied upon the CSAP; and pre- and posttest data for grades three through six relied upon the MAP.

Four regression discontinuity analyses were conducted to examine the data in this study due to the varying assessments used to assess each grade level as
well as varying scales of each assessment. To assess the progress of the first grade students in the treatment group (received intervention) as compared to students in the comparison group (no intervention), PALS assessment data from the spring of 2008 and spring of 2009 were used. To evaluate the progress of students in grades two and three, the same data points were used; these groups were calculated separately because the first grade assessment uses a different scale than that of the second and third grade assessments. CSAP data were used to evaluate the progress of students in fourth, fifth, and sixth grades; again, spring data from 2008 and 2009 were used. The fourth analysis used spring data from 2008 and 2009 to evaluate the progress made by students in grades three through six on the Northwestern Evaluation Association’s MAP.

In order to meet the requirements for the regression discontinuity analysis, all participants whose score did not adhere to the predetermined cut-off score on each of the assessment were eliminated from the analyses. While this led to a smaller sample size, fidelity of implementation was maintained to ensure accurate findings of the regression discontinuity analysis.

As recommended by Trochim (2007), to aid in the visual presentation of data, the cut-off score for the assignment variables (PALS, CSAP, and MAP) were adjusted to 0 on each of the assessments by subtracting the cut-off score from the preassessment score; Table 14 shows the equations used to calculate the adjusted pretest score on each of the assessments.
Table 14

*Calculation of Pretest Adjusted Assessment Scores*

<table>
<thead>
<tr>
<th>Grade</th>
<th>Assessment Used in Regression Discontinuity Analysis</th>
<th>PALS</th>
<th>CSAP</th>
<th>MAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Pretest$<em>{Adj}$ = Pretest$</em>{raw}$ - 61</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>2nd</td>
<td>Pretest$<em>{Adj}$ = Pretest$</em>{raw}$ - 16</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>3rd</td>
<td>Pretest$<em>{Adj}$ = Pretest$</em>{raw}$ - 38</td>
<td>--</td>
<td>--</td>
<td>Pretest$<em>{Adj}$ = Pretest$</em>{raw}$ - 180</td>
</tr>
<tr>
<td>4th</td>
<td>--</td>
<td>Pretest$<em>{Adj}$ = Pretest$</em>{raw}$ - 446</td>
<td>Pretest$<em>{Adj}$ = Pretest$</em>{raw}$ - 184</td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td>--</td>
<td>Pretest$<em>{Adj}$ = Pretest$</em>{raw}$ - 507</td>
<td>Pretest$<em>{Adj}$ = Pretest$</em>{raw}$ - 184</td>
<td></td>
</tr>
<tr>
<td>6th</td>
<td>--</td>
<td>Pretest$<em>{Adj}$ = Pretest$</em>{raw}$ - 537</td>
<td>Pretest$<em>{Adj}$ = Pretest$</em>{raw}$ - 193</td>
<td></td>
</tr>
</tbody>
</table>

-- Indicates assessment was not used at that grade level

**Reading and Interpreting the Figures and Tables**

For each of the regression analyses, one scatterplot and three data tables are presented below. The scatterplot visually represents the regression lines of the treatment (intervention) and comparison (non-intervention) groups as well as the positions of the two regression lines at the cut-off point for assignment into groups. Significantly different slopes indicate differential treatment effects of the intervention on groups; significantly different intercepts on the marker line (at 0 on the x-axis) indicates significant group differences after pretest variance has been accounted for mathematically. Statistical significance of these indices is revealed in the data tables.

The first data table for each assessment shows the regression analysis tests of between subjects effects. The “Group” term signifies the group to which the
participant was assigned; this term reveals the statistical significance of the difference between points of intercept of the two lines on the scatterplot. A statistically significant group effect (p < .05) indicates that a significant difference between groups existed after pretest variance has been accounted for mathematically. The second data table in each analysis shows regression analysis parameter estimates. The “interaction” term indicates whether or not the treatment (intervention) and control (non-intervention) groups were differentially impacted by treatment; this term reveals the statistical significance of the difference in slopes of the two regression lines. A statistically significant interaction term (p < .05) indicates that the groups were indeed differentially impacted by the treatment, thereby showing a treatment effect of the intervention. The third data table includes the regression analysis model summary for regressions run separately for each group. This table reveals the slope (r) and intercept (Beta) of each of the regression lines for the two groups: treatment (participated in intervention) and comparison (did not participate in intervention). Additionally, this table shows the strength of the correlation between the pre- and posttest scores, and therefore predictive ability of the pretest ($r^2$).

**First Grade Phonological Awareness Language Survey (PALS)**

To conduct the regression discontinuity analysis for the first grade PALS assessment, standardized scores had to be calculated due to different scales used on the spring 2008 and spring 2009 assessments; spring 2008 data were collected using the PALS kindergarten assessment whereas spring 2009 data were collected
using the first grade PALS assessment. To calculate the pretest (spring 2008) standardized scores, the following equation was used:

\[ Z_{\text{preadjusted}} = \frac{X_{\text{preadjusted}} - M_{\text{preadjusted}}}{SD_{\text{preadjusted}}} \]

To calculate the posttest data, the following equation was used:

\[ Z_{\text{posttest}} = \frac{X_{\text{posttest}} - M_{\text{posttest}}}{SD_{\text{posttest}}} \]

As a result of the standardization, the cut-off score of 0.0 on the x-axis no longer visually represents the point marking grouping into treatment and control groups.

The group variable explained significant variance in posttest when pretest was accounted for, demonstrating that the two groups differed in manners unexplained by pretest variance \( [F(1, 38) = 8.59, p = .006] \). As shown in the scatterplot for the first grade PALS assessment, the regression line for the treatment group did not differ from that of the control group in either intercept or slope. A non-significant interaction term (Table 15, \( p = .990 \)) showed that the two groups’ slopes did not differ significantly. Similar slopes in the regression analysis for the two groups confirmed that both groups made similar progress on the posttest as predicted by the pretest, thus the null hypothesis was accepted.

The regression line for the intervention group was represented by the equation \( y_{\text{intervention}} = .59X_{\text{pretest}} -.07 + e \); the regression line for the non-intervention group was represented by the equation \( y_{\text{non-intervention}} = .52X_{\text{pretest}} -.03 + e \). First Grade
PALS pretest score was about equally predictive of posttest score for both groups 
\( r_{\text{intervention}} = .59, \ r_{\text{non-int}} = .52 \).

*Figure 9. Standardized PALS Data for First Grade Spring 2008-2009*
Table 15

*Regression Analysis Tests of Between Subjects Effects and Slope Differences—First Grade PALS 2008-2009*

<table>
<thead>
<tr>
<th>Source</th>
<th>Type I Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>7.34</td>
<td>1</td>
<td>7.34</td>
<td>8.59</td>
<td>.006</td>
</tr>
<tr>
<td>Pretest PALS Z Score</td>
<td>3.65</td>
<td>1</td>
<td>3.65</td>
<td>4.27</td>
<td>.046</td>
</tr>
<tr>
<td>Interaction</td>
<td>.00</td>
<td>1</td>
<td>.00</td>
<td>.00</td>
<td>.990</td>
</tr>
<tr>
<td>Error</td>
<td>29.89</td>
<td>35</td>
<td>.85</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 16

*Regression Analysis Parameter Estimates—First Grade PALS 2008-2009*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>B</th>
<th>Std. Error</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-.03</td>
<td>.21</td>
<td>-.16</td>
<td>.875</td>
</tr>
<tr>
<td>Group</td>
<td>-.04</td>
<td>.74</td>
<td>-.05</td>
<td>.962</td>
</tr>
<tr>
<td>Pretest PALS Z Score</td>
<td>.52</td>
<td>.31</td>
<td>1.69</td>
<td>.101</td>
</tr>
<tr>
<td>Interaction</td>
<td>.01</td>
<td>.54</td>
<td>.01</td>
<td>.990</td>
</tr>
</tbody>
</table>

Table 17

*Regression Analysis Model Summary First Grade PALS 2008-2009*

<table>
<thead>
<tr>
<th>Participated in Intervention</th>
<th>Beta</th>
<th>R</th>
<th>R^2</th>
<th>Adjusted R^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>-.034</td>
<td>.522(a)</td>
<td>.272</td>
<td>.263</td>
</tr>
<tr>
<td>Yes</td>
<td>-.070</td>
<td>.593(a)</td>
<td>.352</td>
<td>.334</td>
</tr>
</tbody>
</table>
Second and Third Grade Phonological Awareness Language Survey (PALS)

The group variable explained significant variance in posttest when pretest was accounted for [Table 18; F(1, 68) = 287.62, p < .001]. This demonstrates that the groups differed significantly when pretest was removed as a contributing factor. The regression line of the intervention group was represented by the equation \( y_{\text{intervention}} = 0.25X_{\text{pretest}} + 31.28 + e \); the regression line for the non-intervention group was represented by the equation \( y_{\text{non-intervention}} = 0.56X_{\text{pretest}} = 50.92 + e \). Notice on the scatterplot (Figure 10) that at 0.0 on the x-axis, the regression line for the treatment group is below that of the comparison group.

Notice also that the slopes of the two regression lines appear different; while this difference appears meaningful, no significant difference in slopes was found on this assessment (Table 18, \( p=.139 \)). Again, due to the non-significant interaction term, the null hypothesis was accepted. This non-significance may be due to the small sample size of the groups. Additionally, the low correlation of spring 2008 PALS scores with spring 2009 PALS scores revealed in Table 20 for participants in the treatment group called into question the validity of this measure in assessing growth for these participants (\( r^2 = .07 \)) when compared to the correlation between spring 2008 and 2009 PALS for the comparison group (\( r^2 = .32 \)).
Table 18

Regression Analysis Tests of Between Subjects Effects and Slope Differences
Second and Third Grade PALS 2008-2009

<table>
<thead>
<tr>
<th>Source</th>
<th>Type I Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>25977.42</td>
<td>1</td>
<td>25977.42</td>
<td>287.62</td>
<td>.00</td>
</tr>
<tr>
<td>Pretest</td>
<td>1936.72</td>
<td>1</td>
<td>1936.72</td>
<td>21.44</td>
<td>.00</td>
</tr>
<tr>
<td>Interaction</td>
<td>202.19</td>
<td>1</td>
<td>202.19</td>
<td>2.24</td>
<td>.139</td>
</tr>
<tr>
<td>Error</td>
<td>6141.67</td>
<td>68</td>
<td>90.32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 10. Second and Third Grade PALS Spring 2008-2009
Colorado Student Assessment Program (CSAP)

Once again, the group variable was statistically significant, demonstrating that the intervention and non-intervention groups differed significantly when pretest scores were accounted for in the model [Table 21, $F(1, 86) = 122.96, p < .001$]. A statistically significant interaction effect was found for the spring 2009 CSAP for grades 4 – 6 (Table 21, $p = .008$), therefore the null hypothesis was rejected. This finding indicated that the intervention was differentially effective for students in the two groups. The regression line for the intervention group was represented by the equation $y_{\text{intervention}} = .69X_{\text{pretest}} + 498.44 + e$; the regression line

Table 19

*Parameter Estimates Second and Third Grade PALS 2008-2009*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>$B$</th>
<th>Std. Error</th>
<th>$t$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>50.91</td>
<td>4.14</td>
<td>12.31</td>
<td>.00</td>
</tr>
<tr>
<td>Group</td>
<td>-19.62</td>
<td>5.11</td>
<td>-3.84</td>
<td>.00</td>
</tr>
<tr>
<td>Pretest</td>
<td>.63</td>
<td>.13</td>
<td>4.72</td>
<td>.00</td>
</tr>
<tr>
<td>Interaction</td>
<td>-.38</td>
<td>.25</td>
<td>-1.50</td>
<td>.139</td>
</tr>
</tbody>
</table>

Table 20

*Regression Analysis Model Summary Second and Third Grade PALS 2008-2009*

<table>
<thead>
<tr>
<th>Participated in Intervention</th>
<th>Beta</th>
<th>$R^2$</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>50.91</td>
<td>.56(a)</td>
<td>.32</td>
<td>.30</td>
</tr>
<tr>
<td>Yes</td>
<td>30.28</td>
<td>.26(a)</td>
<td>.07</td>
<td>.02</td>
</tr>
</tbody>
</table>
for the non-intervention group was represented by the equation $y_{\text{non-intervention}} = 0.42X_{\text{pretest}} + 568.12 + e$. The steeper slope of the regression line for the treatment group as compared to that of the comparison group demonstrated that students in the intervention group made greater growth than students in the comparison group (Table 23, $r_{\text{intervention}} = 0.69$, $r_{\text{non-intervention}} = 0.42$).

**Figure 11.** Colorado Student Assessment Program (CSAP) Data Spring 2008-2009
Table 21

*Regression Analysis Tests of Between Subjects Effects and Slope Differences CSAP 2008-2009*

<table>
<thead>
<tr>
<th>Source</th>
<th>Type I Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>382567.19</td>
<td>1</td>
<td>382567.16</td>
<td>122.99</td>
<td>.00</td>
</tr>
<tr>
<td>CSAP Pretest</td>
<td>151609.60</td>
<td>1</td>
<td>151609.60</td>
<td>48.74</td>
<td>.00</td>
</tr>
<tr>
<td>Interaction</td>
<td>23040.95</td>
<td>1</td>
<td>23040.95</td>
<td>7.41</td>
<td>.008</td>
</tr>
<tr>
<td>Error</td>
<td>267518.70</td>
<td>86</td>
<td>3110.68</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 22

*Regression Discontinuity Analysis Parameter Estimates CSAP 2008-2009*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>B</th>
<th>Std. Error</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>568.12</td>
<td>11.71</td>
<td>48.52</td>
<td>.00</td>
</tr>
<tr>
<td>Group</td>
<td>-69.68</td>
<td>18.88</td>
<td>-3.69</td>
<td>.00</td>
</tr>
<tr>
<td>CSAP Pretest</td>
<td>.40</td>
<td>.15</td>
<td>2.64</td>
<td>.010</td>
</tr>
<tr>
<td>Interaction</td>
<td>.55</td>
<td>.20</td>
<td>2.72</td>
<td>.008</td>
</tr>
</tbody>
</table>

Table 23

*Regression Analysis Model Summary CSAP 2008-2009*

<table>
<thead>
<tr>
<th>Participated in Intervention</th>
<th>Beta</th>
<th>R</th>
<th>R²</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>568.122</td>
<td>.42(a)</td>
<td>.17</td>
<td>.16</td>
</tr>
<tr>
<td>Yes</td>
<td>498.441</td>
<td>.69(a)</td>
<td>.48</td>
<td>.45</td>
</tr>
</tbody>
</table>
**Measure of Academic Progress (MAP)**

The group variable was again statistically significant, indicating that the intervention and non-intervention groups differed significantly when pretest scores were accounted for mathematically [Table 24, $F(1,103) = 50,386.58, p < .001$]. No statistically significant effects for intervention on the spring 2009 MAP were found (Table 24, $p = .301$), indicating that the intervention and non-intervention groups were not differentially affected by the treatment and the null hypothesis was accepted. The regression line for the treatment group was represented by the equation $y_{\text{intervention}} = .70X_{\text{pretest}} + 197.51 + e$; the regression line for the non-intervention group was represented by the equation $y_{\text{non-intervention}} = .54X_{\text{pretest}} + 197.81 + e$. Both groups made similar gains on the spring MAP assessment as demonstrated by similar slopes in their regression lines (Table 26, $r_{\text{intervention}} = .70, r_{\text{non-intervention}} = .54$).
Figure 12. Measure of Academic Progress (MAP) Spring 2008-2009

Table 24

Regression Analysis Tests of Between Subjects Effects and Slope Differences MAP 2008-2009

<table>
<thead>
<tr>
<th>Source</th>
<th>Type I Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>4392327.49</td>
<td>1</td>
<td>4392327.49</td>
<td>50386.58</td>
<td>.000</td>
</tr>
<tr>
<td>Pretest MAP 2008</td>
<td>15265.49</td>
<td>1</td>
<td>15265.49</td>
<td>175.12</td>
<td>.000</td>
</tr>
<tr>
<td>Interaction</td>
<td>112.66</td>
<td>1</td>
<td>112.66</td>
<td>1.29</td>
<td>.258</td>
</tr>
<tr>
<td>Group</td>
<td>.59</td>
<td>1</td>
<td>.59</td>
<td>.01</td>
<td>.934</td>
</tr>
<tr>
<td>Error</td>
<td>8978.78</td>
<td>103</td>
<td>87.17</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 25

*Regression Discontinuity Analysis Parameter Estimates MAP 2008-2009*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>$B$</th>
<th>Std. Error</th>
<th>$t$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>197.81</td>
<td>1.97</td>
<td>100.61</td>
<td>.000</td>
</tr>
<tr>
<td>Pretest MAP 2008</td>
<td>.70</td>
<td>.11</td>
<td>6.15</td>
<td>.000</td>
</tr>
<tr>
<td>Interaction</td>
<td>.23</td>
<td>.22</td>
<td>1.04</td>
<td>.301</td>
</tr>
<tr>
<td>Group</td>
<td>-.30</td>
<td>3.64</td>
<td>-.08</td>
<td>.934</td>
</tr>
</tbody>
</table>

### Table 26

*Regression Analysis Model Summary MAP 2008-2009*

<table>
<thead>
<tr>
<th>Participated in Intervention</th>
<th>Beta</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>197.81</td>
<td>.57(a)</td>
<td>.33</td>
<td>.320</td>
</tr>
<tr>
<td>Yes</td>
<td>197.51</td>
<td>.66(a)</td>
<td>.48</td>
<td>.461</td>
</tr>
</tbody>
</table>

**Demographic Data Analyses**

To assess whether or not various demographic groups were differentially impacted by treatment, independent samples t-tests were conducted to evaluate the effect of gender and gifted and talented status on gain score; analyses of variance (ANOVAs) were conducted to evaluate the effect of ethnicity, special education classification, native language status (students learning English as a Second Language), and free/reduced lunch status on gain score for each of the
assessments. Gain scores were calculated by subtracting pretest scores from posttest scores on each of the four measures as shown below.

\[
\text{Gain Score}_{\text{PALS}(1\text{st})} = \text{Posttest}_{\text{PALS}(1\text{st})} - \text{Pretest}_{\text{PALS}(1\text{st})}
\]

\[
\text{Gain Score}_{\text{PALS}(2\text{nd}/3\text{rd})} = \text{Posttest}_{\text{PALS}(2\text{nd}/3\text{rd})} - \text{Pretest}_{\text{PALS}(2\text{nd}/3\text{rd})}
\]

\[
\text{Gain Score}_{\text{CSAP}} = \text{Posttest}_{\text{CSAP}} - \text{Pretest}_{\text{CSAP}}
\]

\[
\text{Gain Score}_{\text{MAP}} = \text{Posttest}_{\text{MAP}} - \text{Pretest}_{\text{MAP}}
\]

No significant differences were found by the independent samples t-test that examined growth rates for male and female participants in intervention and non-intervention groups as demonstrated by p-values greater than .01 for all assessments (first grade PALS, second and third grade PALS, CSAP, and MAP).

Though there were no talented/gifted students in the intervention group, Table 27 shows that there was a statistically significant difference in growth between gifted and non-gifted students in the non-intervention group for one of the four assessments: the Phonemic Awareness Language Survey (PALS) \([t(69) = -4.94, p < .001]\). Students not classified as gifted (M = -9.17, SD = 29.4) showed negative growth, whereas students classified as gifted showed positive growth (M = 8.56, SD = 13.72) on the PALS spring 2009 assessment. No statistically significant differences were found on the other three assessments.
Table 27

Independent Samples t-test for Growth Rates of Gifted and Talented Students

<table>
<thead>
<tr>
<th>Group</th>
<th>Variances Assumed</th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$F$</td>
<td>Sig.</td>
</tr>
<tr>
<td>Classified as Gifted/Not</td>
<td>Equal Variances</td>
<td>10.131</td>
<td>.002</td>
</tr>
<tr>
<td>Classified as Gifted</td>
<td>Assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equal Variances</td>
<td>-4.939</td>
<td>68.88</td>
</tr>
<tr>
<td></td>
<td>Not Assumed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No statistically significant differences in growth were found in the analysis of variance for ethnicity, implying that all ethnic groups, both in intervention groups as well as not in intervention groups, made similar growth from spring of 2008 to spring of 2009 on the PALS first grade assessment, PALS second and third grade assessment, CSAP, and MAP assessments. The same was true for results of ANOVA conducted for free/reduced lunch status, students learning English as a second language, and special education status.
Chapter 6 – Conclusion

Restatement of Purpose

Two primary purposes guided the research conducted in this concurrent mixed methods study. First, this research qualitatively examined the process and procedures followed in designing and implementing a new Response to Intervention (RtI) model. This portion of the study took the form of an intrinsic case study (Creswell, 2007); the data consisted of interviews and the collection of documents and other materials. The second purpose of this research was to evaluate the effectiveness of the Response to Intervention model in raising reading achievement scores of struggling students. The quantitative portion of this study, which consisted primarily of multiple regression discontinuity analyses, was nested within the larger context of the intrinsic case study to provide supplementary information about the efficacy of the newly designed RtI model after its first year of implementation. By qualitatively studying the design and implementation of the RtI model while also evaluating its effectiveness, the conclusions presented later in this chapter will provide guidance and support to other administrators and educations in implementing their own Response to Intervention model successfully.
Research Questions

Four primary questions guided this study, three of which were qualitative and one quantitative with four sub-questions:

**Qualitative questions**

1. How was the Response to Intervention (RtI) model designed and implemented at the district level?

2. How was the Response to Intervention (RtI) model designed and implemented at the school level?

3. What were the experiences of the district administrators, school administrators, classroom teachers, and specialists during the design and implementation of the Response to Intervention (RtI) model?

**Quantitative questions**

1. How effective is the Response to Intervention model in meeting the needs of struggling readers?
   
   • Does the RtI model raise achievement levels on the Colorado Student Assessment Program (CSAP) in reading at a greater rate for students receiving intervention than for students not receiving intervention?
   
   • Does the RtI model raise student achievement levels on the Measure of Academic Progress (MAP) assessment in reading and language at a greater rate for students receiving intervention than for students not receiving intervention?
   
   • Does the RtI model raise student achievement levels on the Phonological Awareness Literacy Screening (PALS) assessment in phonemic awareness and language skills at a greater rate for students receiving intervention than for students not receiving intervention?
   
   • Do gender, ethnicity, free/reduced lunch status, special education status, native language, or time within the intervention impact reading achievement growth?
Findings

The qualitative findings and quantitative results were presented in the previous two chapters on: qualitative findings were discussed in Chapter 4 and quantitative results were provided in Chapter 5. A brief discussion of each chapter is presented below.

Qualitative findings

Chapter 4 described the design and implementation process followed at the district and individual school level as well as challenges encountered and successes experienced by participants throughout the first year of implementation of Response to Intervention.

The district in which this study took place, Summerset Public Schools, set two goals for the 2008-2009 school year: first, to have disseminated information about the structure of a newly designed and implemented multi-tiered model of instruction and intervention to all schools within the district; second, to have functioning Problem Solving Teams in each of its schools by the conclusion of the 2008-2009 school year. Both of these goals were attained by June of 2009. The district’s multi-tiered model of instruction and intervention was described through text and visual representation showing services provided to students at each of the three Response to Intervention tiers (Universal, Targeted, and Intensive). The procedures followed by Summerset school Problem Solving Teams to address the needs of struggling students were also described and represented visually.
The findings revealed that two major challenges were encountered by district level personnel in Summerset Public schools. First, administrators felt pressured to urgently put new practices into effect; pressures were felt as a result of the obvious needs of students in the district as well as new educational policies mandating immediate changes to previous, long-standing practices. A second challenge involved a variety of logistical obstacles to implementation, such as the tracking of scheduling and credits earned towards graduation of secondary students in the district high schools. These challenges made for a steep learning curve for the district personnel as they moved through phases of awareness and implementation simultaneously. While the process of putting the new RtI model into practice presented difficult challenges, district-level administrators felt successful following the first year of implementation after having met the district goals for the year and perceived growth on standardized tests.

Chapter 4 also described the design and implementation of the multi-tiered Response to Intervention model put into practice at Foothill Elementary School within the confines of the district guidelines. Foothill Elementary, a K-6 school in Summerset Public Schools, went above and beyond the goals set by district-level administrators for the 2008-2009 school year by designing and implementing a Standard Treatment Protocol (STP) to complement the services provided to students by the Problem Solving Team at the school. The procedures followed by school personnel in implementing this protocol were described and visually represented in Chapter 4.
The school-level teachers, specialists, and administrator faced two major challenges during the first year of RtI implementation. First, they felt that the structure of the RtI model at the school led to a number of communication challenges that made successful implementation difficult. Secondly, participants expressed concern that the rigidity of the school literacy and intervention schedule made meeting student needs difficult at times. Despite these challenges, the participants agreed that the model was largely successful. Specifically, the model had led to meeting the needs of students more effectively through the implementation of the systematic collection and analysis of formative data and a “double dose” of literacy instruction. The participants felt that the effectiveness of these strategies had been proven by increases in student achievement in reading on a number of assessments as well as noticeable increases in student self-confidence.

**Quantitative results**

Four primary analyses were conducted and presented in Chapter 5. To examine the growth rates of students receiving intervention versus students in comparison groups, four regression discontinuity analyses were conducted: a regression discontinuity analysis examining the growth of first grade students on the Phonological Awareness Literacy Screening (PALS); a regression discontinuity analysis examining the growth of second and third grade students on the PALS assessments; a regression discontinuity analysis examining the growth of third through sixth grade students on the Northwestern Evaluation
Association’s Measure of Academic Progress (MAP); and a regression discontinuity analysis examining the growth of fourth through sixth grade students on the Colorado Student Assessment Program (CSAP).

The findings of these analyses revealed the presence of a statistically significant effect in favor of students in the intervention groups on the spring 2009 Colorado Student Assessment Program (CSAP). However, no statistically significant treatment effect was detected for the spring 2009 Phonological Awareness Literacy Screening (PALS) assessment for second and third grades, the spring 2009 first grade PALS assessment, or the spring 2009 MAP assessment.

Follow-up analyses, including analysis of variance (ANOVA) and independent samples t-tests, examined the impact of the Response to Intervention model for different demographic groups. These data revealed that, with the exception of students classified as gifted and talented (who made statistically significantly greater growth than students not classified as gifted and talented), no statistically significant differential treatment effect was present.

The whole picture: bringing the qualitative and quantitative together

After examining the qualitative and quantitative data separately it is important to examine the manner in which these separate forms of data complement one another to provide a more complete picture of the design and implementation of Response to Intervention and its impact on student
achievement. The following section examines the manners in which the qualitative data allow for a fuller interpretation of the quantitative results.

While researchers such as Michael Fullan (2001) warn educators to anticipate and acknowledge a drop in student achievement immediately following implementation of a new reform movement, participants at both the district and school level felt that, after the first year of implementation, RtI led to increased student achievement in reading. For example, school director Adam Wright commented on the growth of students on the Northwestern Evaluation Association’s Measure of Academic Progress (MAP), pointing out what he considered to be significant gains in scores as measured by increased nationally-normed percentile points. Classroom teachers repeatedly mentioned student growth on the Phonological Awareness Literacy Screening (PALS) assessments for students in grades 1 and 2-3. Kathy Davis, the district level Response to Intervention Coordinator, noted gains on the Colorado Student Assessment Program (CSAP) across the district as well as at the school level. According to the analyses performed in this dissertation, however, growth on only one of the four measures (CSAP) was statistically significant.

One possible explanation for the lack of statistically significant growth on three of the measures may have been due to the low cut point for determining placement in reading intervention. Shadish, Cook, and Campbell (2002) state that the optimal cut-off point for a regression discontinuity analysis is at the 50th percentile, thereby placing half of the students in the intervention (treatment)
group and the other half in the comparison group. Unfortunately, resources in the
district and at the school were not available to support reading interventions for
half of the student population. This led to a much lower cut-off, closer to the 15th
percentile, depending on the assessment used and grade level of the students. Not
only did this lower cut-off decrease the likelihood of a statistically significant
treatment effect, it also changed the dynamics of the population of the treatment
group. For example, all students qualified for special education services were in
the treatment group, whereas none of the participants in the comparison group
were classified as special education or as having learning disabilities.
Additionally, none of the gifted and talented students were in the intervention
group; all were in the comparison group. While a number of the students in the
intervention groups made noticeable gains on each of the assessments
individually, the group as a whole did not make statistically significant gains.
This may have been due in part to the presence of such a large percent of students
with learning disabilities in the intervention group.

Second, the lack of significant treatment effect on three of the four
measures may be explained by the noticeable growth of the entire school
population as a whole. Because the regression discontinuity analyses examined
only the impact of Tiers 2 and 3 on growth, they did not take into account the
growth experienced by the entire population of the school as a result of Tier 1
instruction. As demonstrated by the overall growth on the Colorado Student
Assessment Program (CSAP) from 2008 to 2009 (see Figure 8), the student body
of Foothill Elementary School as a whole (including students in both treatment and comparison groups) made significant growth (see Figure 11, page 206). For example, in three of the four grades assessed by the CSAP, Foothill students made large gains in proficiency. In 2008, 30% of third grade students were proficient in reading whereas 57% were proficient in 2009; 40% of fifth grade students were proficient in 2008 growing slightly to 42% in 2009. Another large gain was made by sixth grade students, growing from 53% proficient in 2008 to 72% proficient in 2009. The one drop in proficiency occurred in fourth grade; 37% of students were proficient in 2008, whereas 29% were proficient in 2009. The growth of the school as a whole may have overshadowed the growth of the students in intervention groups, thereby resulting in a non-significant treatment effect of RtI on certain measures.

A third explanation involved the implementation of a variety of interventions separate from the RtI reading interventions evaluated in this study. Over the course of the 2008-2009 school year, a number of small-scale interventions were implemented by teachers and specialists at the school that directly targeted students above the cut-off point for reading interventions, but who were in need of additional instruction to attain proficiency in reading. For example, one CSAP preparation group (formed by the school director and taught by the researcher) specifically targeted students not in the RtI reading groups, but who were anticipated to be close to attaining proficiency on CSAP. Of the eight students in this group, all of whom had not been proficient on previous measures,
seven attained proficiency on CSAP (the eighth was partially proficient). It is important to note that these students’ needs were indeed met through the use of the Response to Intervention model (e.g., through using a systematic approach to identifying student needs through the collection and analysis of data and providing intervention support), despite the fact that these students were not served through the reading interventions examined in this research. Other similar intervention groups for reading and mathematics had been implemented throughout the year to address student needs, none of which could be accounted for in the regression discontinuity analyses in this study.

Finally, as mentioned at the start of this chapter, researchers such as Michael Fullan (2001) explain that educators and policy makers alike must acknowledge and anticipate a delay in growth, or even a dip in growth, following a reform movement or implementation of a new educational model. It is possible that statistically significant growth may occur on each of these measures after longer implementation of Response to Intervention.

**Implications for Future Response to Intervention Implementation**

Lessons learned through this research can inform the development and implementation of Response to Intervention models in the future. These implications are grouped into three categories: culture and climate components, components related to culture and climate requiring structural and/or logistical attention, and logistical components that facilitate improved implementation. Figure 13 visually represents these key learnings and implications. The following
sections describe the implications for future RtI implementation in each of these three areas.

![Diagram: Key Learnings for Successful Response to Intervention Implementation]

**Culture and Climate Components**

- Re-Culturing, not Restructuring
- Principal Leadership
- Staff Motivation, Enthusiasm and Commitment

**Logistical Components**

- Communication and Collaboration
- The Importance of Data
- Using Both RtI Models Together
- School-Wide Schedule for Literacy "Double Dose"

*Figure 13. Learnings and Implications for Successful Response to Intervention Implementation*

**Culture and climate components**

From the qualitative and quantitative data, three themes emerged that represent key culture and climate components of successful Response to Intervention implementation: re-culturing, not restructuring; principal leadership; and staff motivation, enthusiasm, and commitment. These three components and the manners in which they can be fostered are discussed below.
Re-culturing as opposed to restructuring

Multiple participants in the qualitative portion of this study, including district-level administrators, the school director (principal), classroom teachers, and specialist teachers repeatedly mentioned the importance of framing Response to Intervention not as new program or initiative, but rather as a new way of thinking about education. In his book *The New Meaning of Educational Change* (2007), Michael Fullan refers to this frame of mind as the difference between restructuring and re-culturing.

According to Fullan (2007), schools are more likely to implement superficial changes than systemic changes, which lead to failed initiatives and reform movements. In order for reform movements to be successful, Fullan emphasizes that the culture and climate of the school must change, stating that “a change in culture should be the real agenda of reform” (p. 86). Hargreaves and Fullan (1998) agree, explaining that “transforming the culture – changing the way we do things around here – is the main point” in educational reform (p. 44). Danielson, Dootlittle, and Bradley (2007) explain that in schools implementing new Response to Intervention models, “a paradigm shift is needed for sustainability” (p. 634).

In order to initiate successful systemic reform, such as RtI, in a school or school district, researchers such as Fullan (2001, 2007), Hargreaves and Fullan (1998), Reyes, Scribner, and Scribner (1999), and Eaker, DuFour, and Burnette (200) suggest that the first step is creating a shared view of the mission of the
school. Fullan (2007) suggests a specific mission in which closing the achievement gap should be the overarching goal of the reform, while other researchers are less specific; Eaker et al. (2002) state that, regardless of the mission, schools must “build a solid foundation of shared mission, values, and goals” (p. 4). In their study of high performing Hispanic schools, Reyes, Scribner, and Scribner (1999) emphasize that “a clear, coherent vision is necessary for a successful school” (p. 20). It was clear through the interviews, observations, and collection of documents and materials that participants in the study agreed that the entire staff of the Foothill Elementary School shared the mission of meeting the needs of all students through Response to Intervention and was committed to ensuring student success.

Michael Fullan and a number of his colleagues (Eaker et al, 2002; Fullan, 2001, 2007; Hargreaves & Fullan, 1998) suggest that once a shared mission is established as a foundational component of school reform, Professional Learning Communities (PLCs) should be organized to foster a culture of innovation and collaboration, thereby leading to successful school re-culturing and reform. While the establishment of the PLC at Foothill will be discussed in greater detail later in this chapter, it should be noted here that the cohesive and committed nature of the staff was developed in part as a result of Professional Learning Communities within the school. This cohesion, shared mission, and ubiquitous commitment aided in the re-culturing of the school, thereby leading to systemic adoption of Response to Intervention. Fullan (2001) explains that “effective
leaders know that [this] hard work of re-culturing is the *sine qua non* of progress” (p. 44).

**Effective leadership**

Closely related to the importance of school re-culturing is the importance of effective leadership within a school. The vast majority of researchers examining school reform vehemently emphasize the significance of effective leadership in successful implementation of school reform (Demming, 1986; Fullan, 2007; Fullan, 2001; Hargreaves and Fullan, 1998; McCook, 2006; Reyes, Scribner & Scribner, 1999; Sawyer, 2008; Schmoker, 2006; Whitaker, 2003). According to Sawyer (2008) “committed, involved administrators are essential” to school reform implementation (p. 17). Reyes, Scribner, and Scribner (1999) emphasized that in high performing schools serving Hispanic students, as Foothill Elementary school does, “the most successful schools had an innovative principal who was willing to do almost anything” (p. 28). McCook (2006) also stressed the importance of effective administrators in implementing a Response to Intervention model, stating that “principal leadership is critical” and in fact may be “the most critical component of the success of an intervention process” (p. 39).

In his book *What Great Principals Do Differently: Fifteen Things that Matter Most*, Whitaker (2003) explains fifteen strategies taken by effective principals to run successful schools and the school director addressed and attended to each one. While all of these strategies will not be addressed specifically, a few will be discussed in order to provide suggestions for schools
implementing systemic changes such as Response to Intervention. The strategies discussed here are those that were repeatedly evident in the collection of the qualitative research portion of this study.

*People, not programs, hire great teachers, and teach the teachers.*

Many of Whitaker’s (2003) strategies for school improvement and success emphasize the greater importance of the teachers working at the school over the importance of programs implemented. According to Whitaker (2003), principals must hire effective, innovative, committed teachers and ensure that all teachers working at the school possess these qualities. Whitaker (2003) explains that there are two ways to improve schools significantly: to hire better teachers and to improve the teachers already working in the school. During the qualitative portion of this study, interviews were conducted with district-level administrators, the school director (principal), classroom teachers, and specialist teachers and documents and materials were collected, which included staff surveys regarding the effectiveness of the Response to Intervention model. These data all revealed that the school director took an active role in recruiting teachers eager to initiate and implement change; he also promoted and provided professional development for all staff to support innovation and change. While the director admitted the process was difficult at times, he also encouraged teachers who were not willing to participate in the re-culturing of the school to find employment elsewhere or non-renewed their contracts when he felt it was necessary.
Insist on loyalty to the students.

According to Whitaker (2003), “to a great principal, loyalty means making decisions based on what is best for the student – but more than that: what is best for all the students” (emphasis in original, p. 63). In their study of successful Hispanic schools, Reyes, Scribner, and Scribner (1999) also emphasize the importance of commitment and loyalty to student success, asserting that “successful schools have a clear mission that everyone shares – ‘will this work for our kids?’” (p. 12-13). The interviews, observations, documents, and materials underlined the continued focus of the principal and staff to do what was best for the students of Foothill Elementary School. When challenges arose during implementation they were addressed “head-on” and were always framed in the context of doing what was best for the student or students.

Staff motivation, enthusiasm, and commitment

Present in each of the interviews with district staff as well as school staff were comments on the motivation, enthusiasm, and commitment of the staff to doing that which best served the students as well as a commitment to implementing Response to Intervention with fidelity. Research on school reform and Response to Intervention implementation confirms the importance of these traits and stresses these qualities as components being central to success. According to Fullan (2007), if you “take 100 books on change, they will all boil down to motivation” (p. 41); “motivated people” Fullan adds, “get better at their work” (p. 52). Appelbaum (2009) also emphasizes the importance of staff
attitude, stating that “all of the individuals involved [in RtI], both at the district and school level, need to be enthusiastic and knowledgeable” (p. 16).

An element Fullan (2007) stresses as important to successful innovation and reform is shared ownership and accountability. Fullan explains that, in successful schools, “individual teachers stop thinking about ‘my classroom’ and start thinking about ‘our school’” (p. 63). Evident in interviews with the school director and staff as well as in documents such as staff surveys was the recurring theme of shared ownership. As mentioned previously, staff members who were not committed to the re-culturing of the school, including the element of shared ownership, were encouraged to find employment elsewhere, thus leaving a staff fully committed to the implementation of strategies that best served the students. This theme of collective accountability is one indication of the universal commitment to student achievement.

**Culture and climate components requiring logistical support**

The next two components of effective Response to Intervention implementation involve changes to the culture and climate of the school (re-culturing, as Fullan calls it), but require underlying logistical support for successful implementation. The first component involves communication and collaboration between all individuals involved in RtI implementation; the importance of communication and collaboration will be discussed below, as will logistical suggestions for supporting staff to work together effectively while maintaining open lines of communication. The second component of an effectual
RtI model, understanding the importance of data, is also a matter of school re-culturing as opposed to restructuring. However, structural (logistical) support is also necessary to facilitate the process of collecting, analyzing, and interpreting these data.

Communication

As discussed in Chapter 4, a number of challenges arose in the implementation of Foothill Elementary School’s Response to Intervention model as a result of hindrances to communication and collaboration. Numerous researchers have found that lack of communication and collaboration resulting in teacher isolation are major impediments to successful school reform and innovation (Eaker, DuFour, & Burnette, 2002; Fullan, 2001, 2007; Hargreaves & Fullan, 1998; Kemp & Eaton, 2008; McCook, 2006; Reyes, Scribner, & Scribner, 1999; Sawyer, 2008; Schmoker, 2006). Schmoker (2006) asserts that “isolation is the enemy of improvement” (p. 23), Fullan (2007) refers to isolation as “debilitating,” and Hargreaves and Fullan (1998) go so far as to say that “isolation is the enemy of mental health” (p. 55).

Successful models of school reform, on the other hand, encourage and promote teacher communication and collaboration. Fullan (2007) asserts that “open communication is a key to successful change” (p. 97). Reyes, Scribner, and Scribner (1999) concluded after studying successful Hispanic schools that communication and collaboration are key for student success and that successful schools encourage open communication and collaboration between teachers, staff,
and administrators. More specifically referring to successful implementation of Response to Intervention, Sawyer (2008) explains that “experts argue that the many parts of Response to Intervention must be well orchestrated in order to work” (p. 16); Kemp and Eaton (2008) state that “RtI requires general education and special education to work as a seamless system,” which requires continuous communication and collaboration. McCook (2006) also explains that collaboration is a key element in problem solving to address and meet student needs.

Chapter 4 discussed the issues faced by teachers at Foothill Elementary School during its first year of full Response to Intervention implementation. These challenges included a lack of communication between classroom teachers and intervention specialists and a lack of communication between the Intervention Leadership Team (ILT) and Problem Solving Team (PST). While there were obvious challenges in communication, the staff’s willingness to work collaboratively and communicate openly prevented these challenges from becoming major barriers to RtI implementation. Teachers, specialists, and administrators all emphasized the commitment of the staff to its common goal of serving students as being crucial to this process. These findings suggest that despite the importance of staff commitment and dedication, structures must be put into place to better facilitate communication and collaboration between all involved in Response to Intervention. One way in which open lines of
communication and collaboration can be encouraged and supported is through the use of Professional Learning Communities (PLC).

*Professional Learning Communities (PLC).*

According to Eaker, DuFour, and Burnette (2002), “the most promising strategy for substantive school improvement is developing the capacity of school personnel to function as a professional learning community” (p. 1). Eaker, DuFour, and Burnette (2002) explain that the conceptual framework of a PLC is characterized by:

(a) a solid foundation consisting of collaboratively developed and widely shared vision, values, and goals; (b) collaborative teams that work interdependently to achieve common goals; and (c) a focus on results as evidenced by a commitment to continuous improvement (p. 3).

Other researchers, such as Fullan (2007), Reyes, Scribner, and Scribner (1999), and Schmoker (2006) also encourage the implementation of PLCs and stress their important role in the process of reform and re-culturing and promote student achievement. While the staff of Foothill Elementary School did not specifically call their collaborative, interdependent teams (ILT, PST, CST) Professional Learning Communities, they did exhibit all qualities of such teams as defined above by Eaker, Dufour, and Burnette (2002). In addition, after addressing the importance of staff collaboration with school director Adam Wright, Wright confirmed that he had established each of these teams as Professional Learning Communities following the model suggested by Eaker, DuFour and Burnette (2002).
Structures to promote further communication and collaboration.

The staff of Foothill Elementary School did use (and continues to use) Professional Learning Communities for a variety of purposes, including analysis of student progress, lesson planning, and curriculum coordination. However, staff repeatedly commented in interviews and surveys that collaboration and lines of communication broke down or were at times non-existent between staff members and teams (or PLCs). After its first year of implementation, the staff has now put into place a number of structures, both formal and informal, to promote and encourage communication and collaboration.

Coordination between the Intervention Leadership Team, Problem Solving Team, and Child Study Team.

As described in Chapter 4, three teams of school personnel exist at Foothill to deliver Tier 2 and 3 interventions, monitor and evaluate student progress, and use a problem solving model for evaluating the needs of individual students failing to make adequate progress or respond to intervention: the Intervention Leadership Team (ILT), the Problem Solving Team (PST) and the Child Study Team (CST). While many schools across the nation employ one individual to coordinate the efforts of these teams, Foothill administration and staff chose to delegate responsibility of this position to three individuals: the ILT facilitator, PST facilitator, and CST facilitator. As described in Chapter 4, this delegation of responsibility led to difficulties in communication between the three teams. In order to better coordinate the services of each of these teams, there are
now overlapping staff members on each of the teams, responsible for maintaining open lines of communication between the teams to better coordinate services provided to students.

*Mutual observations.*

To improve and coordinate efforts made by classroom teachers and intervention teachers, Intervention Leadership Team facilitators and the school principal created time for classroom teachers to observe intervention groups and for intervention teachers to observe general education in the mainstream classroom. Support was provided by the school director in the form of schedule coordination as well as substitute teachers who covered classroom and intervention instruction while teachers and interventionists observed one another. This process is supported by research on collaboration conducted by researchers such as Fullan (2001, 2007), Eaker, DuFour, and Burnette (2002), and Schmoker (2006).

*Open ILT meetings.*

As discussed in Chapter 4, the Intervention Leadership Team met regularly to discuss student performance and responsiveness to intervention as measured by frequent curriculum-based measures of growth. In order to further coordinate the efforts of the interventionists and classroom teachers, during the 2009-2010 school year the Intervention Leadership Team began inviting classroom teachers to their weekly discussions of student data and growth. These
open meetings allowed for better coordination of instruction and understanding of student progress.

The importance of data

Numerous researchers such as Schmoker (2006), Fullan (2001, 2007), Hargreaves and Fullan (1998), Eaker, DuFour, and Burnette (2002), Sawyer (2008), Appelbaum (2009), Reyes, Scribner, and Scribner (1999); Kemp and Eaton (2008), McCook (2006), and Wright (2007) stress the importance of using data to evaluate and monitor student achievement. These researchers emphasize that “effective schools use data and stay focused on outcomes” (Hargreaves & Fullan, 1998); stress that “assessment for learning is an effective, high-yield strategy” (Fullan, 2007); and maintain that education is greatly improved when teachers and administrators “become assessment literate” (Hargreaves & Fullan, 1998). Additionally, researchers examining Response to Intervention models all agree with Sawyer (2008) that “data are central to any Response to Intervention model” (see Chapter 2 for full details). While the importance of data collection and analysis was not a topic newly revealed by this study, the experiences of the participants supported the need for a systematic approach to these tasks.

A site-specific, systematic manner for evaluating student data.

Appelbaum (2009); Wright (2007); J. McCook (2006); Kemp and Eaton (2008), Lynn Fuchs (2003); Fuchs and Fuchs (2006); Fuchs, Fuchs, and Compton (2004); Fuchs, Mock, Morgan, and Young (2003); and Laura Justice (2006) all describe the process followed in a multi-tiered model of instruction and
intervention for collecting and evaluating data to improve student achievement.

The Intervention Leadership Team (ILT) at Foothill Elementary School used advice from scholars such as these along with trial and error to develop a structure that facilitated this process. Implementing this process with fidelity was described by participants in this study as one of the key elements in meeting the needs of struggling students.

The Intervention Leadership Team process for data collection and evaluation in the Standard Treatment Protocol was represented visually in Figure 7 in Chapter 4. While the specific interventions implemented at individual schools can and should vary based upon student needs, the processes used while choosing interventions, placing students in interventions, monitoring student progress, evaluating intervention effectiveness, and implementing additional interventions as needed can be used by other schools implementing a Standard Treatment Protocol. Additionally, the process followed by the Problem Solving Team can and should be used by schools implementing a Problem Solving Model.

**Logistical considerations for RtI implementation**

The final recommendations for implementation are logistical or structural in nature only. These include the creation of a school-wide schedule in which literacy blocks are distributed throughout the school day, grouping appropriate grade-level teams together in a manner that supports a double dose of literacy instruction for students in need of Tier 2 or Tier 3 intervention. The second recommendation is considerably more resource intensive: the implementation of
both a Problem Solving Model as well as Standard Treatment Protocol to meet the needs of all students.

*A school-wide schedule.*

During the collection of qualitative data, participants at both district and school levels mentioned the importance of creating a school-wide schedule coordinating a “double dose” of literacy instruction for all struggling students. While this point was discussed in detail in Chapter 4, it is worth briefly revisiting here. According to much of the body of research on Response to Intervention, Tier 2 and Tier 3 interventions should supplement, rather than replace, Tier 1 instruction. (Fuchs, 2003; Fuchs & Fuchs, 2006; Fuchs, Fuchs, & Compton; Fuchs, Mock, Morgan, & Young, 2003; Gersten et al., 2008; Justice, 2006; Martinez et al., 2006; Sawyer, Holland, & Detgen, 2008). Additionally, Eaker, DuFour, and Burnette (2002) encourage developing a master schedule for the whole school to promote collaboration between teachers to facilitate the use of Professional Learning Communities. While obviously every school is different, the template created by the director and staff of Foothill Elementary may serve as a guide for developing a school-wide master schedule to coordinate literacy instruction and facilitate teacher collaboration (Table 11).

*Implementing both Response to Intervention models*

The vast majority of research on Response to Intervention describes two distinct models for implementation: a Standard Treatment Protocol (STP) or a Problem Solving Model (PSM) (Appelbaum, 2009; Burns, Appleton, &
Stehouwer, 2005; Fuchs & Fuchs, 2006; Fuchs, Fuchs, & Compton, 2004; Fuchs, Mock, Morgan, & Young, 2003; Hollenbeck, 2007; McCook, 2006; Sawyer, 2008; Wright, 2007). However, at Foothill Elementary School both models were implemented. The majority of the participants, at the district as well as school level emphasized the importance of incorporating both models in order to better meet the needs of students. For example, while he was pleased with the success of the Problem Solving component of RtI at Foothill, school director Adam Wright felt that the high needs of the student population of the school required a Standard Treatment Protocol. Laura Rossi (classroom teacher and Problem Solving Facilitator) on the other hand, emphasized the importance of the individualized attention received by students going through the Problem Solving Team process in addressing specific student needs. District level administrators Kathy Davis and Ben Hamilton also explained that, while Foothill had gone beyond the scope of the district initiatives and goals by implementing both models, they hoped that both Problem Solving Models as well as Standard Treatment Protocols would eventually be present in all schools within the district. Unfortunately, as will be discussed below, research examining co-implementation of Problem Solving Models and Standard Treatment Protocols is lacking.

Suggestions for Future Research

While much research is needed on the implementation and efficacy of Response to Intervention on addressing student needs, three primary areas of concern remain at the conclusion of this study and warrant future research. First,
as discussed above, the majority of research on Response to Intervention focuses on the implementation of one model or another, a Standard Treatment Protocol or a Problem Solving Model. While these two models are typically considered to be alternatives to one another, participants in this study suggested that a successful Response to Intervention models should incorporate both approaches. This mixed model of implementation should be examined further.

Second, while this study did not focus on examining the difference between responders and non-responders to intervention, this topic merits further examination. Researchers such as Scruggs and Mastropieri (2006); Vaughn et al. (2009); Berninger (2002); Fuchs and Fuchs (2006); and Fuchs, Fuchs, and Compton (2004) suggest that much remains to be learned as to how educators can differentiate between students who respond to intervention and those who do not. Similar to the IQ-discrepancy model discussed in Chapter 2, no clear consensus has been reached defining a lack of response to intervention. Fuchs and Fuchs (2006) propose that researchers develop a common approach to define and assess non-responsiveness while Fuchs, Fuchs, and Compton (2004) suggest that a component of future research is for researchers to “address the criteria applied to define non-responsiveness” (p. 226).

Finally, while the limitations of this research will be discussed in the next section, one of the limitations of this study was its small sample size. Researchers such as Gersten and Dimino (2006) as well as Vaughn et al. (2009) encourage the use of a regression discontinuity design to evaluate the effectiveness of Response
to Intervention. A regression discontinuity design including a larger sample size may provide a clearer picture of the efficacy of Response to Intervention. Additionally, valuable information could be gleaned by examining RtI after multiple years of implementation.

**Limitations of this Research**

Limitations to this research existed in both qualitative and quantitative components of the study. The primary limitation of the intrinsic case study was the lack of a larger sample of participants. While this study did include participants from nearly all areas of Response to Intervention design and implementation, more participants from each area would have led to a more complete picture of the process and resulting implementation of RtI at both the district and school levels. For example, within the district in which this research took place, during the 2008-2009 school year, there were two Response to Intervention Coordinators; only one, however, agreed to be interviewed. At the school level, all specialists and classroom teachers were approached for interviews, but only seven ended up being interviewed. Of those seven, none were teachers at the fifth or sixth grade level. Including a greater number and variety of participants at the school level also would have led to a more complete picture of Response to Intervention. Lastly, due to time and IRB constraints, students were not interviewed for this study. Student opinions and perspectives would have added to the depth of this research as well.
The primary limitation of the quantitative portion of this study was the small sample size of student participants in the intervention and comparison groups. This occurred for two reasons: first, the data for all of the students whose scores did not strictly adhere to the cut-off point for the regression discontinuity analyses were eliminated from the final analyses. Quite frankly, this is in part a result of doing research ‘in the real world’ rather than in a laboratory setting. A second reason for the small sample involved the lack of a consistent measure of reading achievement across all grades included in the study. As discussed in the quantitative section of this study; reading achievement of students in different grade levels was assessed using three different measures: the Phonological Awareness Literacy Screening (PALS) for first through third grades, the Northwestern Evaluation Association’s Measure of Academic Progress (MAP) for third through sixth grades, and the Colorado Student Assessment Program (CSAP) for fourth through sixth grades. Using one measure across all grades would have allowed for a single regression discontinuity analysis including all students in the school with a larger sample than was permitted using multiple assessments. Finally, the sample of the population was small as a result of the small-by-design nature of the school in which the study took place. Foothill Elementary School served approximately 328 students during the 2008-2009 school year; a larger sample was simply not available. The small sample severely limited the power of this study.
What happened to Jessica and Michael?

At the beginning of this dissertation, I told the story of Jessica and Michael. Both of these students were struggling academically and had little if any confidence in their abilities to succeed in school, yet neither qualified for special education services. As a result of the implementation of Response to Intervention, both Jessica and Michael received intensive (Tier 3) literacy intervention throughout the 2008-2009 school year, and participated in reading intervention groups for one hour daily in addition to their mainstream classroom reading instruction.

Jessica made obvious gains in reading achievement over the course of the 2008-2009 school year. On the fall 2008 Measure of Academic Progress (MAP), Jessica scored in the first percentile for reading proficiency when compared to her peers nationally. As of the fall 2009 MAP, Jessica scored at the 13th percentile. Jessica has not yet taken CSAP, but will do so in March of 2010. As described in Chapter 1, Jessica struggled to read from a first grade leveled text at the start of second grade; according to her AIMSweb progress monitoring data, she started second grade reading 4 words correct per minute on a first grade text. At the start of third grade, however, Jessica was reading within the average range for a third grader; she is now reading 65 words correct per minute, placing her close to the 50th percentile nationally. The most noticeable transformation in Jessica, however, is her enthusiasm and excitement about reading. On a daily basis, Jessica now asks to be timed on her reading, to demonstrate her knowledge of site
words, and to show you how fluently she is able to read aloud from grade appropriate texts. She frequently asks to take books home and pesters her teachers to go to the library for her to find more books. No longer does her smile fade to a frown when she is asked to read aloud – she begs to do so.

Michael, too, has shown growth over the course of the year, though the significance of this growth remains questionable. While he started the 2008-2009 school year reading 20 words correct per minute on a first grade text (scoring at the 1st percentile nationally for reading), he is now reading 65 words correct per minute at the third grade level (placing him within the ‘normal’ range between the 25th and 75th percentile). Unfortunately, Michael has not shown significant growth on the PALS or MAP assessments; he will take CSAP for the first time in March of 2010. The combination of these assessments has led Michael’s teachers to question his responsiveness to intervention. As discussed in the above section regarding future research, his teachers are still unclear as to what “responsiveness” looks like; however, Michael’s mixed performance has led his teachers to refer him to the Problem Solving Team for further evaluation and intervention. He appears to be a good candidate for special education evaluation. Despite his lack of growth on certain measures, like Jessica, Michael’s confidence and enthusiasm for reading have skyrocketed. He has become a leader in his intervention group, modeling his skills for other students and teaching students new to intervention groups how to do each of the activities and sounding out words for them. Also like Jessica, he begs for books to take home and insists on
reading aloud to impress his teacher whenever he gets a new text. Rather than immediately looking up for assistance while reading, Michael continues to look at his book, sounding out difficult words and insisting “I can do it!” when offered help. Michael’s expressions of being “not really good at school” have now been replaced by exclamations of his success and growth; he’s more than happy to tell you “I’m a really good reader!” and “I’m smart.”

**Final Thoughts**

After spending a year and a half researching Response to Intervention as well as working to implement it, I have been won over by its promise. The results of the quantitative portions of this study were mixed and obvious improvements need to be made to the structure of “Foothill Elementary School’s” RtI model; a variety of problems and challenges were brought to my attention during the qualitative portion of this study, and more research is clearly needed to add to the body of knowledge on RtI by observing and experiencing the successes of the model (including the gains in confidence and enthusiasm shown by students like “Jessica” and “Michael”). However, on completion of this study, I firmly believe in the potential of RtI in meeting the needs of our diverse learners. In the words of Appelbaum (2009):

> It is my personal belief that RtI is one of the best and most important strategies in education. It will literally transform schools in the United States. It will help students succeed in ways that no other legislation has done. In the end, not only will the students be more successful, but the schools will be more successful as well. And our society will be a better place for children because they will have succeeded, thanks to RtI. (p. xv)
References


### Appendix A

#### Interview Protocol for District Level Administrators

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How were you involved in the design and implementation of the RtI model? What was your role in the process?

What were the major motivations/purposes/goals/reasons for designing and implementing the RtI model?

How was the Response to Intervention model designed and implemented at the district level?

- Who was involved?
- What policies affected decision making?
- What research was examined to determine methodology?
- What types of decisions were made? (Top-down, bottom up, other?)
What were your experiences like in designing the model?

What were your experiences in implementing the model?

What did you feel were some of the successes of this undertaking?

What were the major challenges faced during design and implementation?
  • Challenges in designing the model?
  • Challenges in putting it into practice?

What does the RtI model look like in practice at the school?
  • What are the components of the model and how does each function?
  • How are struggling students identified and served?

How does the RtI model still need to be improved in practice?

In what ways do you think schools were impacted by the model? (Positively or negatively)

In what ways do you think students were impacted by the model? (Positively or negatively)

What advice would you give to a school or district starting up an RtI model?
Appendix B

Interview Protocol for School Level Administrators

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Were you involved at all in the design of the RtI model at the district level? If so, how?

How was implementing the RtI model presented to you? By whom? When? Under what circumstances?

What were your major motivations/purposes/goals/reasons for implementing the RtI model?
How much were you involved in designing the model as it was implemented at your school? What were your roles and responsibilities? How much autonomy were you given?

What does the RtI model look like in practice at your school?

How does the model (in practice) still need to be improved at your school?

In what ways do you think classrooms were impacted by the model? (Positively or negatively)

In what ways do you think students were impacted by the model? (Positively or negatively)

What did you feel were some of the successes of this undertaking?

What were the major challenges faced during design and implementation?
  - Challenges in designing the model?
  - Challenges in putting it into practice?

What advice would you give to a school starting up an RtI model?
## Appendix C

### Interview Protocol for Classroom Teachers

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Were you involved at all in the design of the RtI model at the district or school level? If so, how?

How was implementing the RtI model presented to you? By whom? When? Under what circumstances?

What do you believe were the major motivations/purposes/goals/reasons for implementing the RtI model?

How does the RtI model work at your school?
- What are the components and how does each work?
- How is a struggling student identified and served?
What were your experiences like in implementing the model at your school?
  
  • How was your teaching/instruction impacted? (Positively or negatively)

In what ways do you think students were impacted by the model? (Positively or negatively)

What did you feel were some of the successes of this undertaking?

What were the major challenges faced during design and implementation?

What advice would you give to a school starting up an RtI model?

What advice would you give to a teacher at another school starting up the RtI process?
Appendix D

**Interview Protocol for Specialist Teachers**

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Were you involved at all in the design of the RtI model at the district level? If so, how?

How was implementing the RtI model presented to you? By whom? When? Under what circumstances?

What were the major motivations/purposes/goals/reasons for implementing the RtI model?

How does the RtI model work at your school?
- What are the different components and how does each work?
In what ways do you think classrooms were impacted by the model? (Positively or negatively)
In what ways do you think students were impacted by the model? (Positively or negatively)

What did you feel were some of the successes of this undertaking?

What were the major challenges/obstacles faced during design and/or implementation?

How do you feel the RtI model at your school could be improved?

What advice would you give to a school starting up an RtI model?

What advice would you give to a teacher just starting to get involved in the RtI process?