

THE EFFECTS OF TIER ONE RtI AT THE ELEMENTARY SCHOOL LEVEL USING
I-STATION ON READING TEXT FLUENCY

by

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ABSTRACT

THE EFFECTS OF TIER ONE RtI AT THE ELEMENTARY SCHOOL LEVEL USING I-STATION ON READING TEXT FLUENCY

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University of Houston-Clear Lake, 2017

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This study looked at the effects of Tier 1 Response to Intervention (RtI) on elementary school reading fluency using I-Station assessment and intervention. The study included four elementary schools within the same school district that represented the four quadrants of the school district so that a variety of factors and the district's demographic make-up were represented. This allowed for both vertical and horizontal comparison and alignment.

The universal screener and diagnostic assessment from I-Station were administered at the start and end of the school year in September and May 2017 to all students in grades K-4 excluding only those students who were working on a functional individual educational plan. In addition, surveys that evaluated teacher self-efficacy with RtI were administered at the same intervals in the year to the teachers of the students

sampled. Finally, teachers were asked to volunteer to participate in interviews regarding their perceptions towards the RtI process.

Results indicate significant growth between the pre and post-test screenings on the I-Station reading fluency assessments. Teacher responses on the surveys did not change significantly across the school year and when evaluated through the context of the teacher interviews, the data highlights the importance of the professional development and follow up coaching piece of the implementation of the intervention. Future research indicates further need for training, education, and fidelity of implementation when it comes to RtI intervention and programming in schools.

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CHAPTER I

INTRODUCTION

Since the introduction of the *Individuals with Disabilities Education Act* (IDEA) (IDEA, 2004) and its subsequent revisions, most importantly in 2004, laws require that students with disabilities be educated with their non-disabled peers to the maximum extent possible, or in their least restrictive environment (LRE)(IDEA, 2004). When compared to other nations in the world, the United States (U.S.) ranks 12th in the world for reading fluency, falling behind its economically comparable counterparts (U.S. Department of Education, 2012). In 2013, only 34% of the nation's public education students performed at or above proficiency on state required reading assessments at both the 4th and 8th grade level (U.S. Department of Education, 2013). In addition, of the nation's public school students, only 41% of 4th graders and 34% of 8th graders scored at or above proficiency for mathematics (U.S. Department of Education, 2013). This has become controversial over the belief that including struggling students results in the slowing down of the class as a whole, instead of the class bringing them up to the pace and level of the top achiever.

Additionally, Chambers et al. (2011) noted that success in school is synonymous with success in reading, and students who complete elementary school lacking in reading skills or behind in their reading ability are at an increased risk for dropping out of high school. Children who finish elementary school with weak reading skills are at a very high risk of dropping out before they finish high school. Children's reading failure in the early

grades costs the education system and society a great deal, in special education, remediation, grade repetition, delinquency, and, ultimately, dropout rates (Chambers et al., 2011).

It was the intent of this study to show that the implementation of specific Response to Intervention (RtI) constructs, alongside early reading fluency interventions that incorporate the use of the I-station reading intervention and assessments, will result in students who are able to take the first steps in closing the gap between their own baseline functionality in reading fluency and their grade level benchmark; ultimately laying the foundation for improving the students' performance in the other content areas as well.

Research Problem

Solving students' learning difficulties with differentiated instruction is a difficult task even for the most experienced teachers. Figuring out how to solve every student's difficulty when there are 20 different learning styles, different needs, etc. in a classroom with only one teacher was the ultimate problem that the federal and state governments had to solve. This problem led to the introduction of Response to Intervention (RtI) in 2004 as part of the IDEA revisions (IDEA, 2004).

Response to Intervention mandated that states and schools put into place a three tiered system to better identify students with disabilities; to serve students who are struggling by requiring additional interventions above and beyond the regular classroom curriculum; and to reduce the number of referrals to special education (Turse & Albrecht, 2015).

Tier 1 of RtI is defined as grade-level instruction and support where 80% of the campus population should be assessed through universal screeners and grade-level progress monitoring (Ogonosky, 2010). Tier 2 requires roughly 90 minutes per week of supplemental interventions added for those students who are still not meeting grade level benchmarks and expectations. Approximately 15% of the campus should be in Tier 2, and these students are evaluated using progress monitoring and diagnostics (Ogonosky, 2010). Finally, Tier 3 is defined as supplemental intervention delivered one-on-one for students at an additional 120 minutes per week, and evaluation is based on progress monitoring and diagnostics (Ogonosky, 2010). Only 5% of the campus should be in this tier, and students should not remain there long. Students are expected to either progress and move back down to Tier 2, or if they continue to fail to respond to intervention, then they should be referred for a special education evaluation (Ogonosky, 2010).

In addition, the federal government was trying to get educational systems to make referral decisions based on research and data to ensure students were not being mislabeled or looked over in the process of special education identification and to ensure students were not being labeled due to a lack of appropriate education or exposure to the curriculum, specifically in mathematics and English (IDEA, 2004). According to the U.S. Department of Education's National Center for Special Education Research, reading is a global skill on which all other academics are built. Students who are not successful in reading will generally not be successful in the other areas of their academic lives (U.S. Department of Education, 2014).

As of 2013, 32 million adults (14%) in America cannot read and 21% of adults read below a 5th grade level (National Institute of Literacy, 2013). In Texas, for example,

28% of students in the 4th grade and 31% of students in the 8th grade scored at or above proficient in reading (U.S. Department of Education, 2013). In other words, 72% and 69% of 4th and 8th grade students respectively cannot read at age or grade level expectations. It is therefore necessary to find a way to teach classrooms full of students with a variety of learning styles, capabilities, and skills so that reading proficiency can be improved, thereby improving academics as a whole, and potentially creating better opportunities and futures for America's youth (Solis, Miciak, Vaughn, & Fletcher, 2014). A byproduct of this would also be improving the quality of schools in America.

Solis, Miciak, Vaughn, and Fletcher (2014) found that reading strategies using interventions that focused on comprehension components and used word reading strategies were promising, whereas studies that looked at group size, number of hours of intervention, and grade level intervention did not show significant results. In addition, students who participated in reading interventions based on the RtI model not only made gains in their reading fluency and performance, but if they sustained participation in interventions, they were also likely to close the reading gap between themselves and typically performing students (Solis et al., 2014).

In conjunction with these findings, students who participate in targeted reading interventions over time have been shown to improve in attention span and behavior, not just academics (Roberts et al., 2014). These results were even found in students originally classified as struggling readers prior to the intervention (Roberts et al., 2014). Research indicates that reading interventions improve not only academics, but also students' classroom behavior, regardless of skill (Larabee, Burns, & McComas, 2014; Roberts et al., 2014). One study noted that these students have the potential to catch up to their

typically functioning peers by their senior year in high school, even if interventions are started as late as middle school (Roberts et al., 2014; Solis et al., 2014). In addition to improving behavior, the use of technology as part of interventions in the classroom has been a recent topic of research. Larabee, Burns, and McComas (2014) found that using iPad supported phonics interventions increased student time on task during the intervention.

Isbell and Szabo (2015) found that teachers who had a higher level of self-efficacy were better able to implement RtI and other new instructional ideas, and were better able to effect change on their students' academic achievement. Teachers with a high sense of self-efficacy were even found to have a significant effect on students' reading ability when those students with a specific learning disability in reading; in fact, the higher a teacher's self-efficacy, the more positive the effect on RtI implementation (Isbell & Szabo, 2015). This study indicates that not only should researchers focus on the strength of the reading intervention when implementing RtI, but they should also look at empowering teachers to build a sense of competency with the interventions. This may be difficult if teachers are not inclined to abandon the current process because change is daunting, and traumatic to systems, making it essential to build teachers' self-efficacy as a part of RtI.

Research that looked at a delay in implementing Tier 2 or 3 interventions, rather than immediately starting them based on students' original scores on the universal screener, found that students who began interventions right away had significantly higher reading performances than students who did not begin interventions until typically prescribed per RtI practices (Al Otaiba et al., 2014). A universal screener is a brief

assessment administered to all students with a cut-point on the measure that has been established through prior research that reflects the students' likelihood of success or failure in future performance on important future outcomes such as teacher grades or high stakes tests.

Finally, RtI consultant and author, Dr. Ogonosky, noted that for any intervention to be successful there must be a solid foundation in place, specifically the foundation of what type of assessment is being used to assess the intervention and progress of the student (A. Ogonosky, personal communication, February 7, 2015). It is therefore important to note that universal screeners should be used because they will help with the "who" of response to intervention, or who needs additional intervention, rather than the "what," or what difficulty the students have which is provided via a diagnostic screener (A. Ogonosky, personal communication, February 7, 2015). This highlights the fact that a majority of schools trying to implement RtI are ineffective by determining the "what" (what skills deficits students have) rather than focusing on the "who," (who needs to have intervention and be referred to special education). Rethinking a school's approach to intervention, assessment, and referrals could create a revolutionary educational environment where schools and interventions become more cost-effective and efficient.

Significance of the Study

While Response to Intervention and its impact on education has been thoroughly studied, the positive effects of many of these studies have not been combined to create an effective and holistic approach to improving education for all students. Research has shown that teacher efficacy and using technology as part of response to intervention improves behavior (Isbell & Szabo, 2015; Larabee, et al., 2014). It is time to combine

these positive aspects of RtI described above (e.g., early intervention, teacher self-efficacy, computer assisted intervention, etc.) with reading fluency intervention at a young age to ensure readers reach grade level expectations by the time they graduate from high school (Roberts et al., 2014; Solis et al., 2014), and start it immediately, instead of the current practice of waiting for students to fail (Al Otaiba et al., 2014) so that reading ability for Americans overall will be improved, thus improving their quality of life.

Research Purpose and Questions

The purpose of this mixed methods study was to determine if implementing Tier 1 RtI at the elementary school level would influence student-reading achievement. The following research questions guided this study:

1. Is there a statistically significant mean difference in student reading achievement from pre- to post-assessment following RtI intervention?
2. Is there a statistically significant mean difference in teacher self-efficacy in using RtI from pre- to post-RtI training?
3. What are the perceptions of classroom teachers towards the value of the implementation of technology-rich RtI?

Definitions of Key Terms

Comprehension Processes: These processes allow students to understand passages they read: making connections to prior knowledge, generating questions, visualizing and creating sensory mental images, making inferences, determining importance, monitoring reading and applying fix-up strategies, and synthesizing (Buehl, 2013).

Curriculum Based Assessments: A formative evaluation method designed to evaluate student performance compared to their classroom curriculum and instruction (Turse & Albrecht, 2015).

Diagnostic Screener: A brief but precise form of assessment that analyzes student strengths and weaknesses (Ogonosky, 2010).

Gains: Change in scores between two assessment occasions (Smith, et al., 2014).

Growth: Represents a mathematically derived slope estimate that is established across three or more data points (Smith et al., 2014).

I-station Assessment: A computer-adaptive assessment for developing readers from pre-K through 3rd grade that blends age-appropriate content with rich, lively animations and characters that draw kids in, engage their interest, and motivate them to participate. In 30 minutes, it can measure an entire class in all critical areas of reading development including: phonemic awareness, alphabetic knowledge, vocabulary, comprehension, and fluency (Mathes, Torgesen, & Herron, 2014).

I-station Intervention: Delivers individualized instruction using age appropriate content through use of an interactive computer system for pre-K through high school students. Interventions focus on phonemic awareness, alphabetic knowledge, vocabulary, comprehension, word analysis, and fluency. I-station intervention automatically adjusts to the child's ability in all skill areas and uses lively animations and characters to "draw kids in, engage their interest, and motivate them to participate" (Mathes, Torgesen, & Herron, 2014).

Least Restrictive Environment (LRE): The maximum extent appropriate that children with disabilities, including children in public or private institutions or other care facilities,

are educated with children who are not disabled, and special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability of a child is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily (IDEA, 2004).

Progress Monitoring: Involves the analysis of slope (growth) and includes the use of assessment data collected multiple times per year (Smith et al., 2014).

Prosody: A broad term that includes patterns of pitch, timing (duration and pause), and loudness (Cutler, Dahan, & van Donselaar, 1997).

Reading Text Fluency: The ability to read text accurately, quickly, and with good prosody so that time can be allocated to comprehension processes (Wolf, 2015).

Response to Intervention (RtI): A process that emphasizes how well students respond to changes in instruction. The essential elements of an RtI approach are: the provision of scientific, research-based instruction and interventions in general education, the monitoring and measuring of student progress in response to the instruction and interventions; and the use of these measures of student progress to shape instruction and make educational decisions (Klotz & Canter, 2006).

Self-Efficacy: A belief in one's capabilities to organize and execute the courses of action required to produce given attainments (Bandura, 1977).

Specific Learning Disability: A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain

injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage (IDEA, 2004).

Teacher Perceptions: The way one thinks about or understands someone or something (O'Malley, K. L., 2016).

Universal Screener: A brief assessment administered to all students with a cut-point on the measure that has been established through prior research that reflects the students' likelihood of success or failure in future performance on important future outcomes such as teacher grades or high stakes tests (Fuchs, Fuchs, & Compton, 2012).

Universal Screening: The systematic assessment of all children within a given class, grade, school building, or school district, on academic and/or social-emotional indicators that the school personnel and community have agreed are important (Ikeda, Nessen, & Witt, 2007).

Conclusion

This chapter provided an overview of the need for this study, significance of the problem, research purpose and questions, and key definitions. The present study was a contribution to former studies determining both plausible and effective solutions to whether reading Rtl is effective in approving student reading achievement. The next chapter will be a literature review of the major topics that will encapsulate this study.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter will present what researchers have reported on Response to Intervention with regard to how well computer assisted tutoring works, along with two types of RtI models: (a) traditional (known more for waiting to fail) and (b) dynamic (intervening as soon as possible). In addition, the review will include the results of previous research and statistics with regard to reading interventions, teacher self-efficacy, beliefs, and perceptions regarding the implementation and development of RtI, and I-station's reliability, validity, and studies looking at its effectiveness as an RtI intervention. Research reviewed will include both quantitative and qualitative studies.

Computer Assisted Tutoring

Previous research has shown that one-to-one tutoring provided by certified teachers is the most effective approach for assisting students with reading difficulties (Slavin, Lake, Davis, & Madden, 2010). However, Chambers et al. (2011) conducted a study to determine if a more modern approach of using computer assisted tutoring (CAI) was more effective at supporting struggling readers than the traditional approach of teacher provided one to one tutoring. In addition, Chambers et al. also looked into which type of tutoring (CAI or teacher one on one) was more efficient at reaching a larger number of students within the same time period. The study used 33 high poverty *Success For All* schools across nine states (Georgia, Massachusetts, Texas, Washington, Oregon, Mississippi, Florida, Pennsylvania, and Colorado). All tutors used were certified teachers

and there were the equivalent of two full time tutors per school. Schools had an average of 64% African Americans, 24% Hispanics, and the control schools were 80% African Americans and 14% Hispanics. Five percent of the control students and 10% of the treatment students were Caucasian.

Students at each school were selected originally based on the lowest performing 50% of first graders and second graders. These students were then assessed using a standardized reading measure, and those lowest scoring 20 students in each grade were selected to participate in the study. The study used the Woodcock Johnson III (WJ-III) Test of Achievement with subtests of Letter Word Identification (LWID), Word Attack, and Passage Comprehension. The WJ III was normed on a national sample of children and test re-test coefficients were .95 for LWID and .83 for Word Attack (Woodcock, McGrew, & Mather, 2001). Data was collected by giving all students in the first and second grade on all campuses a standardized reading assessment. The lowest scoring 50% of these students were then administered the WJ-III test of LWID in the fall of the 2007-2008 school year.

The lowest scoring 20 students in grades one and two were then entered into the tutoring program to which their campus had been assigned, either the treatment or the control group. Throughout the year, each tutor would collect information on the student's skills and weaknesses regardless of if they were in charge of the CAI tutoring sessions or the traditional tutoring sessions. The tutor would use this information to exit students from the tutoring program if they met grade level benchmarks, or adjust their program if they were progressing past a skill set. In the spring, all students in the tutoring programs were administered the WJ III tests of LWID, Word Attack, and Passage Comprehension

as post-test data. Data was analyzed using a multivariate analysis of covariance (MANCOVA) looking at all four dependent variables together controlling for LWID on pretests. Analysis of covariance (ANCOVA) was then carried out for each dependent variable also controlling for LWID, and finally, effect sizes were determined.

Results of the study found that students in the treatment group scored significantly higher than the control group on the Letter Word Identification subtest in the first grade and marginally higher in the second grade. In addition, using analysis of covariance when looking at post-tests separated by grade level, the first grade treatment group outperformed the control group on all three measures, but there were no significant differences at the second grade level. An important outcome of the study was that those schools who used the CAI were able to tutor 31% more first grade students and 46% more second grade students than the schools who were in the control group (used traditional tutoring methods).

In another computer intervention program, Patarapichayatham and Roden (2014) looked at the effects of I-station intervention and assessment on early literacy skills in pre-Kindergarten (pre-K) and Kindergarten students across the U.S. Patarapichayatham and Roden were interested in answering three questions using the I-station curriculum: (a) Do students using I-station curriculum make greater gains in early literacy skills than those who do not; (b) Do students who use I-station more than other students make greater gains in early literacy skills; and (c) Do Tier 3 students with a sufficient amount of I-station usage make greater gains in early literacy skills? The study used students in pre-K and Kindergarten across the U.S. The sample size was determined based on

students who used I-station curriculum from between one minute to 4,000 minutes between September 2013 and April 2014.

Students were then sorted based on their campus determination (Good Implementation Campus or not-determined by whether campuses used I-station as recommended by the developer). Those “Good Implementation” campuses were then sorted further based on if they had used I-station with their students (pre-K and Kindergarten) for at least 250 minutes within the given time frame. Students within each tier of response to intervention (RtI) were represented within the sample, and finally, only those students who had both September and April assessment scores with the I-station assessment were included in the study sample (Patarapichayatham & Roden, 2014). The following numbers represent the students within each test sample: pre-K Overall Reading 7,151, pre-K Letter Knowledge 6,878, Pre-K Vocabulary 7,915, Kindergarten Overall Reading 27,267, Kindergarten Letter Knowledge 70,970, Kindergarten Phonemic Awareness 21,635, and Kindergarten Vocabulary 20,437 (Patarapichayatham & Roden, 2014).

The instrumentation used to assess these areas were the I-station Indicators of Progress (ISIP) Early Reading assessments which provide continual data to determine developmentally appropriate skills and individualized lessons for meeting student needs (Patarapichayatham & Roden, 2014). It is an internet and web delivered computer adaptive testing (CAT) system that continuously monitors student progress in critical reading domains for grades pre-K through 8th and identifies students who are at-risk for failure in reading or gathers information about the students’ performance in these reading domains via short academic tests given monthly that create a scope and sequence to

inform instruction for the student. This data was collected on the students in the sample between September 2013 to April 2014 automatically through use of the I-station curriculum (the assessment is embedded in the curriculum and intervention portion of the computer software), and then the researchers subtracted each student's mean of each sub-skill score in September 2013 from his or her mean of each sub-skill in April 2014 (called the delta).

Scores were then analyzed by grade, by tier in RtI, and by amount of I-station curriculum usage (each area was run separately). In addition, the deltas (difference in the actual mean scores between September and April) were compared with I-station's expected growth for each sub skill for the given time period that is derived from national norms (Patarapichayatham & Roden, 2014). Results of the study found that students who used I-station curriculum made greater gains in early literacy skills than those who did not. Pre-K students who used I-station curriculum made greater gains in vocabulary than students who did not use I-station, and for kindergarten students in the study, those that used I-station made greater gains in Letter Knowledge and Vocabulary than students who did not use I-station. Findings also showed that the more students used I-station, the greater their gains in early reading literacy skills. Finally, the study found that at-risk students (classified as being in Tier 3 of RtI) made greater gains with sufficient/more I-station curriculum usage than students in the lower two tiers, especially at more than 300 or 400 minutes of I-station usage across all grades and subtests (Patarapichayatham & Roden, 2014).

Using the same process, but a different sample, Patarapichayatham (2014) studied the effects of I-station reading curriculum and interventions on students in grades 1-8 to

answer the same questions: (a) Do students who used the I-station reading curriculum achieve faster results than those who do not, (b) Do students who use more of the I-station reading curriculum make faster gains than those who use less, and (c) Do students who are at-risk of reading failure (in Tier 3 of RtI) make greater gains in reading ability with a sufficient amount of I-station Reading curriculum usage than those who do not use I-station? Patarapichayatham (2014) used students in grades 1-8 across the state of Texas with between 140-400 students in each grade represented. Students were given the I-station Reading curriculum and interventions, and assessed using the built in I-station program three times during the 2013-2014 school year (September, February, and May).

Data was analyzed in the same fashion as previously for the pre-K and Kindergarten study: data was collected on the students in the sample between September 2013 to April 2014 automatically through use of the I-station curriculum (the assessment is embedded in the curriculum and intervention portion of the computer software), and then the researchers subtracted each student's mean of each sub-skill score in September 2013 from his or her mean of each sub-skill in April 2014 (called the delta). Scores were then analyzed by comparing the deltas with the I-station expected growth for the Overall Reading Ability (Patarapichayatham, 2014). Findings showed that students who used the I-station Reading curriculum grew much faster in reading ability than students who did not use the curriculum, and students who used the curriculum in higher amounts (for longer periods of time) grew at a faster rate in their overall reading ability than students who used the reading curriculum for a lesser amount of time. Finally, results found that students who were determined to be at-risk for reading made greater gains in their overall

reading ability with sufficient amounts of use of the I-station reading curriculum (Patarapichayatham, 2014).

I-Station: Reliability, Validity, and Studies

I-station therefore has been shown to be effective as a reading intervention and assessment tool, but is it reliable and valid for this area? Mathers (2007) conducted a study to look at concurrent validity between I-Station's Indicator of Progress (ISIP) and the Dynamic Indicators of Early Literacy Skills (DIBELS) to see if ISIP and DIBELS: identify the same children as at-risk for reading problems, result in strong predictive validity coefficients when compared to the Texas Assessment of Knowledge and Skills (TAKS) third grade reading assessment, or provide alternate forms of reliability for benchmark tests in reading so they can be used as alternate assessments for reading skills (Mathers, 2007).

The ISIP program is a computer-based program that uses cartoons and games to evaluate student's reading ability and tracks their progress the more they use the program. Whereas the DIBELS is a paper and pencil or tablet style curriculum-based measure that evaluates a student's reading comprehension and fluency. It is administered by a trained educator who then scores and tracks students' progress through subsequent administrations (University of Oregon, 2017). Finally, the Texas Assessment of Knowledge and Skills (TAKS) test is a state assessment that evaluates students' reading, writing, and math abilities through multiple choice and short essay questions (Texas Education Agency, 2017).

The study used four elementary schools in a southwestern, urban school district in Dallas, Texas that were identified as having a highly diverse population representative of the U.S. Each school identified 20 students in each grade level (Kindergarten through third grade) for a total of 80 participants per school, 320 total for the study. Students were assessed using the ISIP, which included the following subtests: Beginning Sound Fluency, Phonemic Blending Fluency, Letter Recognition Fluency, Letter Sound Fluency, Nonsense Word Fluency, Timed Reading with Meaning, and Comprehension, and the DIBELS, which included the following subtests: Initial Sound Fluency, Letter Naming Fluency, Phoneme Segmentation Fluency, Nonsense Word Fluency, and Oral Reading Fluency (Mathers, 2007). Trained administrators with background clearance administered the DIBELS and ISIP assessments in four sessions which corresponded to the four benchmark periods allotted in a school year (beginning of the year, two middle of the year, and the end of the year), with students alternating between DIBELS assessments and ISIP assessments, taking no more than two assessments in a single week (Mathers, 2007).

Reliability of the ISIP benchmark assessments was examined by correlating each alternate form subtest on the ISIP to its alternate form. Combined scores on subtests that were related were created to construct four clusters whose reliability was examined by correlating each alternate form cluster to its matching counterpart (Mathers, 2007). The same process was done with the DIBELS subtests. Concurrent validity was established on the ISIP benchmark assessments by correlating the ISIP subtests to DIBELS subtests for the K-3 data, and correlations matrices for ISIP clusters were compared to DIBELS subtests as well (Mathers, 2007). Finally, the number of agreements of classifications

combining grades were cross tabulated, and Cohen's Kappa was computed to determine independence of each ranking to help derive whether both the DIBELS and ISIP predicted the same at-risk students.

Findings of the study were as follows: both ISIP and DIBELS have similar alternate form reliabilities across benchmarks and demonstrated high levels of concurrent validity as reflected in Pearson's r coefficient that was corrected for restricted range, and both essentially measure the same construct (Mathers, 2007). Those tests that had the highest correlations also had the best predictive strength for identifying students who were highly at-risk for reading problems and both the ISIP and DIBELS third grade measures correlated moderately with performance on the third grade reading TAKS, with the ISIP measures being more strongly correlated (Mathers, 2007).

In a similar study conducted in 2009, Dr. Kalinowski collected data to determine the reliability and validity of the ISIP's Early Reading program. Data was collected during the 2008-2009 school year at five elementary schools from a large north Texas independent school district by administering seven thirty-minute testing sessions every two weeks between October and February using the ISIP Early Reading Program (Kalinowski, 2009).

A seven-group Latin squares design was used to reduce ordering effects. Students were administered the *Texas Primary Reading Inventory* (TPRI) in Kindergarten three times during the year, the *Iowa Tests of Basic Skills* (ITBS) to students in grades 1 and 2 in October, the TAKS test to students in grade 3 in October, the ISIP Early Reading program, the DIBELS (Phoneme Segmentation Fluency, Nonsense Word Fluency, and Oral Reading Fluency), along with external measures such as the Comprehensive Test of

Phonological Processing (CTOPP), Woodcock Language Proficiency Battery Revised-Letter Knowledge (WLPB-R), Test of Word Reading Efficiency-Alphabetic Decoding (TOWRE), Wechsler Individual Achievement Test (WIAT-II), Woodcock Johnson III Test of Achievement-Spelling (WJ III), Peabody Picture Vocabulary Test-Vocabulary (PPVT-III), and Gray Oral Reading Tests-Comprehension (GORT-4).

Pearson product moment correlation coefficients between ISIP Early Reading administrations were computed to help establish test-retest reliability. In addition, content validity was established to substantiate the test development process (Kalinowski, 2009). Concurrent validity evidence was established by computing Pearson product moment correlation coefficients between ISIP Early Reading subtests and the external measures. Data shows mostly large to very large criterion validity with scores from well-known external measures such as the CTOPP, GORT-4, PPVT-III, TOWRE, WJIII ACH, WLPB-R, and WIAT-II, as well as with the TPRI and ITBS. Validity results show that the ISIP Overall Reading is a stronger predictor for TAKS Reading using scores given anywhere from one to five months prior to the TAKS being administered. Evidence supports the claim that the ISIP Early Reading program produces reliable and valid data for measuring key areas of reading development, specifically phonemic awareness, alphabetic knowledge, vocabulary, and reading comprehension, along with overall reading ability (Kalinowski, 2009).

Finally, Bugbee (2011) reviewed data from an east Baton Rouge Parish school system to look at how I-station works for struggling readers when they are not being coached or prompted by professional researchers guiding them on how to use I-station. Wedgewood Elementary school self-selected to use I-station with their students due to

their low ranking amongst Louisiana's schools (60th out of 88). Wedgewood Elementary had 648 students from a highly diverse population that participated in the I-station reading curriculum and intervention for the 2010-2011 school year. Teachers and staff were initially trained on how to use the I-station reading intervention program and assessment features and then were expected to implement them as the schools RtI program. The study looked at students' pretest and post-test scores on the EduSoft English Language Arts assessment (Louisiana's state assessment), which was administered in Fall 2010 and Spring 2011 to determine if they improved by using the I-station assessment and intervention program (Bugbee, 2011).

Data was analyzed in multiple ways. First, Bugbee (2011) looked at score differences by simply subtracting the pre-test score from the post-test score and determining the difference. Then looking at the cumulative percentages of students who advanced one or more levels and taking into account the degree of advancement, the study looked at scores based on weighted or unweighted gains. Results showed significant progress in grades first through third with 63% to 80% of students making an increase of at least one level. Fourth and fifth grade students made gains, but not significantly due to "no change." However, this was due to students remaining in a satisfactory category, no significant losses were found. Findings showed that students at Wedgewood Elementary school had an average growth of 64% exceeding the district growth of 19.4%, and these gains were also seen when students were assessed with the LEAP assessment given to 4th grade students with Wedgewood's 4th graders scoring 25 points higher in 2011 than they did in 2010. Finally, after using I-station reading intervention and assessments, Wedgewood Elementary students exceeded state and

district averages for reading proficiency indicating that I-station reading intervention and assessment has a positive impact on student progress and growth (Bugbee, 2011).

Teacher Perceptions of RtI

As has been shown through the research above, there has been documentation to show that RtI is effective for student academic growth; however, RtI continues to be difficult to implement in schools due to employee resistance. Therefore, Stuart, Rinaldi, and Higgins-Averill (2011) decided to conduct a study looking at teacher perspectives of RtI if they were given a chance to have a say in how the RtI was designed and implemented. A school within a large urban neighborhood that serves as a resource hub for the community was selected for the research study. While this school was required to meet the same state mandates as other schools, as far as state assessment and benchmarks, it was in its pilot year and therefore had control over its budgeting, staffing, curriculum, and scheduling (Stuart et al., 2011). Within this school, the researchers asked for teacher volunteers, and eight of the 26 teachers chose to participate. These participants were a part of yearlong focus groups and individual interviews and were able to give feedback to the researchers who helped design and implement an RtI plan over two years. The teachers participated in three one and a half hour sessions of professional development over the course of an academic year, two 90-minute focus groups (one in the Fall and one in the Spring), follow up interviews, and written questionnaires that were developed based on the interviews (Stuart et al., 2011).

This study used the four overlapping states of the constant comparative method to analyze their data. The first step was to code focus group data into as many categories as possible. Then emergent themes were used to formulate individual interview questions

(Stuart et al., 2011). Once this data was collected, interview transcripts, questionnaires, observation notes, and field notes were re-read and themes were generated and coded again. During a second phase, data was sorted and reorganized by chunking and clustering into similar categories and reorganized to identify any connections between or among categories. In the third stage, themes were refined or combined, which led to theories in the final and fourth stage where overarching themes emerged. Findings were able to give insight into the fact that when teachers are a part of the process, they no longer viewed RtI as an administrator directive, but began to feel that they were a part of the process and an agent of change.

In addition, when educators were involved and able to give feedback, they begin to have a clearer understanding of the goals for themselves and their students, including having higher academic expectations for their classes. Insight was also found when it came to the referral process for special education. Not only did the rate at which students were referred drop by 50%, but teachers also felt better about the process, and felt that the process was more effective through RtI (Stuart et al., 2011). Results further showed that teachers being involved in the process and design of RtI came out feeling more effective at being able to progress monitor and felt more capable of knowing what type of data to collect, and how to do so, raising their levels of self-efficacy.

Finally, the study provided insight into the fact that teachers started out with a mixed view of RtI, often feeling hopeful about it but concerned about the amount of time required, but by being a part of the process and having a say in the design and implementation, results saw that within the second year of implementation, their views of RtI had changed to being that of an “opportunity to increase collaboration” and feeling

like they were a stakeholder in the process of change" (Stuart et al., 2011, p. 63). After all, "When the art of teaching is combined with the science of teaching, teachers have a stronger influence on student achievement than social economic factors, language, and minority status" (Isbell & Szabo, 2015, p. 42).

In addition, Castro-Villarreal, Rodriguez, and Moore (2014) also conducted a study to understand the perceptions and beliefs of urban city teachers regarding implementation of RtI. Specifically, they sought to look at what teachers know about RtI; what teachers perceive as barriers to RtI; what they perceive as facilitators to RtI; and what their suggestions would be to improve RtI. The study used 100 total educators who met criteria of having at least one year of teaching experience and volunteered to participate with 97 completing the surveys. Information was gathered by using a 32 question Likert Scale that was created by the author with six open-ended questions. The open-ended questions were the focus of the study, and the volunteers responded to these questions either at the end of a professional development conference or through their graduate work classes, where they were all respectively recruited (Castro-Villarreal et al., 2014).

Data was analyzed using the constant comparison approach, and each response was entered in the QSR NVivo 8.0 software program and examined for meaningful themes before being visually reviewed for word count and frequency of response. Underlying themes and responses were grouped together based on emergent themes, which were then grouped, coded, and labeled before being compared with existing themes for consolidation and categorization (Castro-Villarreal et al., 2014). In addition, each response for the specific question of overall understanding of RtI was coded by two

raters for inter-rater reliability and ultimately achieved a Kappa coefficient of 1.0. Results showed respondents identified 185 barriers to successful RtI that were organized into five key themes: (a) a lack of adequate training or training opportunities, (b) time, lack of time to plan, implement, and gather data required by RtI, (c) a lack of resources with specific citations, including a lack of staff support, (d) the actual structure of RtI itself, meaning that teachers found the structure of the RtI process to be overwhelming, with too many steps, and the process is too long, and (e) paperwork, the need for constant documentation is unmanageable and difficult to keep up with. In addition, teachers suggested that RtI be streamlined so teachers can follow the process more easily, and that there needs to be better communication to help increase effectiveness and efficiency of the RtI process, with the specific suggestion of an electronic data collection system that could help make RtI more manageable (Castro-Villarreal et al., 2014).

Response to Intervention and Reading

One of the negative factors in the research was that teachers found RtI to be a lengthy process that is overwhelming and daunting. Al Otaiba et al. (2014) looked at this and studied whether RtI truly has to be a wait and see process to be effective, or if it can be fast tracked, or as their study called it, “dynamic,” so teachers could intervene as soon as students are identified as needing more intense intervention (Al Otaiba et al., 2014). Participants from a mid-size city in the Southeast were 562 students whose parents gave consent to participate in the study and who were screened based on four reading skills (letter sound fluency, word reading fluency, word attack fluency) in September, December, and March in addition to teacher ratings. Students were given the exact same assessments, but were randomly sorted into either a traditional RtI group or a “dynamic”

RtI group where they were given Tier 2 or 3 interventions as soon as they were identified as needing them.

Screeners used included the Teacher Rating of Reading Problems, Word Identification Fluency task, Sight Word Efficiency, and Phoneme Decoding Efficiency (Al Otaiba et al., 2014). In addition to these screeners, students were also assessed with three subtests from the Woodcock Johnson III: Letter Word Identification, Word Attack, and Passage Comprehension. Oral reading fluency was assessed through correct words read per minute.

Data was analyzed using principal outcome measures, factor scores, and confidence intervals. Results of the analyses showed that students in the dynamic RtI group had statistically significantly higher reading scores at the Spring screening compared to students in the traditional RtI group (effect size of .314). Findings found that the dynamic RtI model was more effective than the traditional RtI model, even for moving students between tiers and referring them for special education assessment. There was even a significant interaction between Tier 2 and 3 where students in the dynamic condition achieved higher Brief Reading skills than students in the typical condition (Al Otaiba et al., 2014).

In addition, RtI research by Gilbert et al. (2013), examined: (a) if 14 weeks of standard protocol supplemental tutoring defined as Tier 2 and 3 is effective for students identified as unresponsive to Tier 1, (b) if Tier 3 interventions delivered five days a week in a one to one tutoring format is more effective for students than continued Tier 2 intervention for students who fail initially to respond to Tier 2 intervention, and (c) what proportion of at-risk students who receive supplementary instruction achieve reading

performance within the normal range in grades 1-3 (Gilbert et al., 2013). First grade students were recruited across a two-year time period with the same schedules of testing, treatment, and inclusion criteria being used for both years.

Students were drawn from 11 schools and 69 classrooms, all of which had required reading curriculum in kindergarten (Gilbert et al., 2013). Students were nominated by teachers as being in the lower half of the class for reading ability, and of these students, 628 provided parental consent and verbally agreed to participate in the study. Participants were screened using three 1-minute measures, the Test of Sight Word Reading Efficiency, the Test of Phonemic Decoding Efficiency, the Woodcock Reading Mastery Test-Revised-Normative Update, Word Attack, and Word Identification subtests. Latent class analysis was applied to the screeners to determine initial placement into the tiers, and progress monitoring was conducted for six to seven weeks, with assessments being given at the end of each period, then slopes and predicted growth were calculated. Those students who were deemed as unresponsive to the treatment were randomly sorted into one of two groups based on whether the student should continue treatment in Tier 2, or move up to Tier 3. Assessments were given prior to the start of the study (pretest), after each progress-monitoring period, and at the end of the study (post-test) (Gilbert et al., 2013).

Data was analyzed in four steps: students were classified into groups according to their assessment, treatment, and response status during the school year to allow contrasts between tutoring efficacy analysis and prevention analysis; then contrast codes were created to compare at-risk students who did and did not receive supplemental tutoring, and Tier 2 non responders who did and did not receive Tier 3 tutoring; a multilevel model

accounting for dependency due to small group and classroom membership was run evaluating questions one and two of the study; and finally, the final step was to calculate proportion of students in each group who had word reading scores within the normal range at the end of grades 1-3 (Gilbert et al., 2013). A latent change score analysis was conducted to determine change in word reading ability between pretest and post-test prior to treatment effects being analyzed with weighted contrast codes through a multilevel regression model. Results found that all groups made gains from pretest to post-test on all measures, and students who were deemed at-risk for reading difficulties benefited from supplemental tutoring (Tiers 2 and 3) with greater changes in their reading scores than students who remained within Tier 1. There was no difference in scores between students who received an extended intervention period in Tier 2 versus those who moved up to Tier 3. Finally, at the end of grade 1, 59% of students scored within the average range on word reading who had been in Tier 2, 46% in second grade, and 40% in 3 grade with a slight decline in the number of students reading in the average range over time, indicating that RtI does improve students' reading ability but does not necessarily correlate with a long term effect of students reading ability (Gilbert et al., 2013).

Summary of Findings

Response to Intervention has been studied extensively, but studies have yet to combine multiple constructs to determine if the combination can create an effective RtI program for schools. Computer based tutoring and reading programs were found to be more effective and efficient at reaching a larger number of students than traditional tutoring and RtI programs (Chambers et al., 2011; Patarapichayatham & Roden, 2014; Patarapichayatham, 2014). More so, I-station was found to be effective at improving

students' reading abilities whether they were considered at-risk or not (Bugbee, 2011; Patarapichayatham & Roden, 2014; Patarapichayatham, 2014) in addition to being reliable and valid measures of reading that are considered a strong predictor of at-risk readers and future performance on standardized reading assessments (Kalinowski, 2009; Mathers, 2007). RtI is also effective when students receive intervention as soon as they are identified as struggling and that this can lead to longer-term effects and larger gains in their reading abilities (Al Otaiba et al., 2014; Gilbert et al., 2013). Finally, when surveyed, teachers identified several perceived barriers to RtI such as lack of support from their leaders, lack of adequate training, lack of time to conduct RtI, a lack of resources including staff, and an overall confusing process. However, when teachers were involved with the process of development and implementation of RtI, teachers reported an increased sense of effectiveness, self-efficacy, and sense of being a stakeholder making this area a key focus of future studies regarding RtI (Stuart et al., 2011; Castro-Villarreal et al., 2014). Combining these positive constructs is the charge of future RtI research.

Theoretical Framework

The theory that guided the research for this study is Lewin's change theory (1947) which states that systematic change follows three phases: unfreezing, changing, and refreezing (Johnson & Christensen, 2013; Lewin 1951). The first phase of unfreezing is characterized by identifying and removing the resisting forces (in the case of this study, meeting with the principals and Alternative Lead Teachers to create investment to I-station and RtI). The second phase incorporates creating an imbalance of forces so that the forces for change are greater than those of resistance, thus resulting in change (in this

case, having enough investment with teachers and campuses supporting the RtI process leading to its success). The final and third phase results in new equilibrium or “refreezing” with the new change in place, and the permanency of the refreezing of the new change is based upon the strength of the forces for the change, and how well the opposing forces were weakened (Lewin, 1951).

In addition, Lewin formulated a theory of force field analysis change, which has been developed into a tool to analyze the forces for a change, and those forces opposing the change and to also determine which to weaken based on whether a person supports the change or not (Lewin, 1951). This was also applied to the present study in that principals and stakeholders in the district had to determine which forces to weaken to help create the positive change of their RtI plan. Meaning that the general feel of teachers in the district was that RtI is a waste of time and just a lot of paperwork, according to teacher reports. Therefore, if the district and its administration want teachers to commit to implementing RtI in compliance with federal guidelines, they needed to identify the teachers’ opposition and the forces that supported it. This then allowed them to determine which changes and forces would be most effective for encouraging change (meaning the teachers commit to RtI implementation).

This study was grounded in Bandura’s theory of self-efficacy in that teachers with a higher sense of self-efficacy should have a greater positive impact on their students’ learning and achievement as assessed through the I-station reading curriculum and assessment (Bandura, 1993). Bandura notes that one of the most effective forces for change is a person’s belief “about their capability to exercise control over events” (Bandura, 1989, p. 1175). In addition, Bandura (1989) found that those who have a

higher sense of self-efficacy set higher goals for themselves and have a stronger commitment to change.

A higher sense of self-efficacy also leads to higher levels of motivation and more efficient cognitive processes leading those with high self-efficacy to be better able to process information, remember it, and then utilize it (Bandura, 1989). These factors were therefore integral to the teachers implementing RtI as a part of this study. If the school district created a higher sense of self-efficacy within their teachers through trainings and coaching, then the teachers should be more motivated to implement the new RtI programs and create higher achievement in their students.

Conclusion

This chapter contextualized the literature on Response to Intervention (RtI), recent approaches to incorporating technology into RtI, reading interventions as a foundation to learning, and specifically the data on I-station as an intervention with student reading. Overall, interventions that incorporate technology, focus on reading as a necessary and foundational tool, and the specific computer program of I-station have been found to help students decrease their gaps in learning as a part of the federally mandated RtI program. In the next chapter, an overview of the research problem, operationalization of theoretical constructs, research purpose, questions, hypotheses, research design, population and sampling selection, instrumentation to be used, findings of a pilot study, data collection procedures, data analysis, privacy and ethical considerations, and the research design limitations of the study will be introduced.

CHAPTER III

METHODOLOGY

The purpose of this mixed methods study was to determine if implementing Tier 1 RtI at the elementary school level influenced student-reading achievement. A purposeful sample of general education teachers was selected based on their implementation of the I-station reading program as a part of meeting the district requirements for reading RtI. All teachers grades K-4 implementing I-station were chosen to participate in the *Multi-Tiered Instruction Self-Efficacy Scale (MTISES)* surveys and then asked to participate in interviews. From the sample of teachers, a purposeful sample of students was chosen based on the fact that they were in these teachers' classrooms, participating in the I-station RtI, and were in the appropriate grades to meet the criteria of being in Early Childhood Education (K-4). Quantitative data was analyzed using a paired samples t-test and qualitative data was analyzed using a constant comparative method that looked for common emergent themes. This chapter presents an overview of the research problem, operationalization of theoretical constructs, research purpose, questions, hypotheses, research design, population and sampling selection, instrumentation to be used, data collection procedures, data analysis, research identity, privacy and ethical considerations, and the research design limitations of the study.

Overview of the Research Problem

Reading is a global skill on which all other academics are built; students who are not successful in reading will generally not be successful in the other areas of their

academic lives, according to the U.S. Department of Education's National Center for Special Education Research (U.S. Department of Education, 2014). As of 2013, 32 million adults in the U.S. cannot read and 21% of adults read below a fifth-grade level (National Institute of Literacy, 2013). Response to Intervention was created by the government as a way to address struggling students and to intervene in students' academic areas of weakness. Teacher self-efficacy and teacher attitudes towards RtI also have an impact on student success with RtI, and professional development and coaching have been shown to be effective ways to increase teacher perceptions (Isbell & Szabo, 2015). Additionally, technology-based RtI is a more effective way to reach a larger number of students in a more efficient amount of time (Chambers et al., 2011; Patarapichayatham, 2014; Patarapichayatham & Roden, 2014).

Operationalization of Theoretical Constructs

This study consisted of three constructs: (a) reading achievement, (b) teacher self-efficacy, and (c) teachers' perceptions towards RtI. Reading achievement is defined as the ability to read text accurately, quickly, and with good prosody so that time can be allocated to comprehension processes and was measured using the I-station reading assessments that are built into the I-station computer curriculum. Teacher self-efficacy is defined as a belief in one's capabilities to organize and execute the courses of action required to produce given attainments which is essential in being able to develop and implement RtI and was measured through the use of the *Multi-Tiered Instruction Self-Efficacy Scale* (MTISES). Teacher perceptions towards the RtI process is defined as key factors that can determine the success or failure of its implementation in schools and the

powerful filters that shape how an individual sees the world, other people, and oneself. Teacher perceptions were measured through interviews.

Research Purpose and Questions

The purpose of this study was to determine if implementing Tier 1 RtI at the elementary school level would influence student reading achievement. The following research questions guided this study:

1. Is there a statistically significant mean difference in student reading achievement from pre- to post-assessment following RtI intervention?
2. Is there a statistically significant mean difference in teacher self-efficacy in using RtI from pre- to post-RtI training?
3. What are the perceptions of classroom teachers regarding the value of the implementation of technology-rich RtI?

Research Design

A mixed-methods research design (QUAN→qual) was used to examine the dynamics between the RtI for reading achievement, teacher self-efficacy with RtI, and teachers' perceptions towards RtI. Quantitative data was used to ground the study in the research literature, and qualitative data was used to explain patterns of consensus and contradiction within the quantitative data. A purposeful sample of K-4 general education teachers from four elementary schools in a large public school district in southeast Texas were chosen based on several inclusion criteria: (a) they had to be implementing the I-station reading assessments and interventions as part of the district mandated RtI for reading; (b) they were teaching any of the grades K-4 which are considered to be Early Childhood Education; and (c) they were employed on one of the four campuses that had

granted the researcher access for during the 2016-2017 school year. From this sample of teachers, a convenience sample was taken of all of the teachers' students including both general education and special education students' reading assessment scores. Quantitative data were collected through archival data from the I-station assessments and collection of the MTISES surveys. Quantitative data were analyzed using percentages, means, and paired samples t-tests. Qualitative data were collected using a case study approach using interviews conducted with volunteer teachers and analyzed using the constant comparative method that looks for common emergent themes.

Population and Sample

For this study, the population included all elementary school campuses within a large school district in southeastern Texas. The population looked at all students housed on the elementary campuses along with all teachers employed on an elementary campus. The school district participating in the study had 27 elementary campuses with approximately 600 staff teaching grades K-4 and over 40,000 students. The district's demographics are presented below in Table 3.1.

Table 3.1

Elementary School District Demographic Data for the 2016-2017 School Year

	District Demographic Data	Total Number
Total Students	100.0%	18,918.0
African Am.	18.6%	3,512.0
Hispanic	36.5%	6,902.0
White	38.7%	7,325.0
Other	6.2%	1,179.0
Econ. Disad.	35.9%	6,794.0
Limited Eng.	13.6%	2,573.0
Male	51.3%	9,708.0
Female	48.7%	9,213.0
Early Childhood Education	0.3%	110.0
Pre-Kindergarten	1.7%	682.0
Kindergarten	6.8%	2,731.0
1 st Grade	7.6%	3,084.0
2 nd Grade	7.3%	2,950.0
3 rd Grade	7.6%	3,068.0
4 th Grade	7.5%	3,031.0

Table 3.2

Elementary School Teacher District Demographic Data for the 2016-2017 School Year

	District Demographic Data	Total Number
Total Teachers		5,003.0
African Am.	12.4%	316.6
Hispanic	12.1%	308.4
White	73.3%	1,873.3
Other	2.3%	56.9
Male	21.9%	559.9
Female	78.1%	1,995.2

The purposeful sample of teachers consisted of all K-4 teachers who were employed at the selected four elementary campuses and participated in the I-station reading RtI. The purposeful sample of students included all general and special education students who attended the four elementary campuses, were in grades K-4, and were students within the selected teachers' classrooms participating in the I-station reading RtI. The campuses were chosen to represent the four quadrants of the large school district (northern part of the district low SES and high SES, and southern part of the district low SES and high SES). This allowed for results to be more generalizable because the sample was more representative of the population and in alignment with its demographics.

The Southern low SES campus had a total of 830 students; the Southern high SES campus had a total of 779 students; the Northern low SES campus had a total of 570

students; and the Northern high SES school had a total of 578 students. Each campus represented one of the four quadrants of the school district and highlighted the diversity within the district. Table 3.2 highlights the specific demographics of each campus. Kindergarten through 4th grade students and teachers using I-station curriculum were selected purposefully to be the sample to represent each campus.

Table 3.3

Comparison of Student School Populations Based on 2016-2017 District/Campus Information

	Southern High SES	Southern Low SES	Northern Low SES	Northern High SES
African Am.	29.7%	25.3%	3.9%	2.4%
Hispanic	27.7%	65.8%	30.2%	11.9%
White	32.0%	4.5%	60.5%	76.3%
Other	10.7%	4.5%	5.4%	9.3%
Econ. Disad.	16.8%	73.4%	28.3%	4.3%
Limited Eng.	3.7%	42.9%	6.1%	2.9%
Male	53.9%	49.5%	54.9%	54.2%
Female	46.1%	50.5%	45.1%	45.8%

Table 3.4

Comparison of Teacher Populations Based on 2016-2017 District/Campus Information

	Southern High SES	Southern Low SES	Northern High SES	Northern Low SES
African Am.	15.9%	17.3%	0.0%	0.0%
Hispanic	0.0%	32.7%	0.0%	0.0%
White	79.5%	46.1%	94.4%	97.1%
Other	4.6%	3.8%	5.6%	2.9%
Male	4.6%	9.6%	5.6%	5.7%
Female	95.4%	90.4%	94.4%	94.3%

Participant Selection

Kindergarten through 4th grade teachers from all four campuses were invited by e-mail to participate in interviews in addition to the surveys they were asked to complete. Approximately 90 educators were invited to participate in interviews, with approximately five to six teachers per grade level per campus. Multiple rounds of emails were sent asking for volunteers to participate and offering incentive for doing so (see Appendix A). Those teachers who opted to participate in interviews were given a \$5.00 gift card to Sonic or Starbucks as a thank you.

Of those teachers asked to participate in interviews, 22 teachers volunteered to participate. The volunteers consisted of five teachers from the North High SES campus, six teachers from the North Low SES campus, six teachers from the South Low SES campus, and five teachers from the South High SES campus. The interviewees included: four teachers who taught in Kindergarten, five teachers who taught in the first grade, five

teachers who taught in the second grade, four teachers who taught in third grade, and four teachers who taught in the fourth grade.

The teachers who participated in the interviews ranged in experience from their first year of teaching to 27 years of experience and had taught all grade levels from the Pre-School Program for Children with Disabilities (PPCD) through collegiate courses. The teachers ranged in years of experience from 6 years to 27 and had only taught in the primary levels (K-5). Of the teachers interviewed, two were Hispanic, two would fall in the 'Other' category of ethnic/racial descriptors, one was unable to be ascertained as they were interviewed over the phone, eight were Black or African American, and 10 were Caucasian based on the researcher's perception.

Instrumentation

I-Station

I-station is a computer-adaptive assessment for developing readers from pre-K through 3rd grade that combines grade-level content with rich, lively animations, and characters that engage students' interests and motivates them to participate. In 30 minutes, I-station can measure an entire class in all critical areas of reading development including: Phonemic Awareness, Alphabetic Knowledge, Vocabulary, Comprehension, and Fluency. The short tests of I-station automatically adjust to each student's ability in the five domains based on his or her progress on each lesson. All of the I-station assessments and curriculum align to the tiers of RtI, and in addition to identifying students who are at-risk based on an RtI model, I-station also adjusts the curriculum based on each student's progress and skills to optimize time spent in the program.

I-station is a computer program that teaches students to read using animation, fun characters, and games. Built into the program is smart technology that constantly assesses students' skills during their reading lessons and adjusts appropriately to work on their weaker skills and to overlook the skills they have mastered. Adding to this, the I-station program prints out routine reports for the teacher to view which analyzes the students' strengths and weaknesses and makes recommendations on how to alter or adjust their reading instruction. In collaboration with the constant monitoring, I-station has built-in, universal screeners that are used to assess students' reading fluency between their pretest and post-test scores (September and May). The I-Station data is then analyzed to determine if students showed significant growth in their reading fluency between September and May.

I-station reliability using Cronbach's coefficient alpha was .900, and test-retest reliability was found with Pearson product moment correlation coefficients ranging from .927 to .970 (Mathers, 2007). This is important because it indicates that the I-station reading assessment is not only strong statistically (meaning valid and reliable), but that it does indeed measure what it says it will measure and that it is also comparable to other reading assessments used historically. Content validity was found to range between .589 and .890, and predictive validity was found with Pearson correlations to range between .695 and .741 (Mathers, 2007).

Finally, concurrent validity was found using Pearson product moment correlation coefficients ranging between .748 and .827, all of which suggest that I-station curriculum and assessment have moderate to strong reliability and validity, including predictive validity when it comes to students' performance on reading measures (Mathers, 2007).

This means that a student's performance on the I-station curriculum and assessment can predict a similar performance on other tests of reading such as the DIBELS or the State of Texas Assessments of Academic Readiness (STAAR) for example.

Multi-Tiered Instruction Self-Efficacy Scale

Barnes and Burchard (2011) developed a survey in response to administrators and teachers in pre-K through 12 schools that measured teachers' sense of self-efficacy in relation to implementation, data collection, and knowledge of RtI, as well as their needs relating to training and support for the process. The original version of the *Multi Tiered Instruction Self-Efficacy Scale* (MTISES) (See Appendix B) was piloted with educators from two school districts (special education and general education), teacher education faculty, and university psychometric experts (doctoral students and a university professor in educational psychology assessment) for a total of 184 participants (Barnes & Burchard, 2011). The piloting process followed the DeVillis scale development process (2003) which is an eight step process: (a) decide what to measure, (b) generate item pool, (c) format the measurement, (d) have item pool reviewed by experts, (e) consider validation items, (f) administer items to a developmental sample, (g) evaluate items and scale quality, and (h) determine optimal scale length.

To maximize item appropriateness, developers had all items reviewed by experts for relevance in three focus groups. Group 1 consisted of 2-university faculty who specialized in research in multi-tiered instruction (MTI) and an experienced teacher; Group 2 consisted of general education teachers, special education teachers, specialists, and administrators active in MTI leadership, and Group 3 consisted of psychometric experts, two doctoral students in psychology assessment, and their professor (Barnes &

Burchard, 2011). Across multiple sessions, focus groups mapped items to constructs, evaluated wording and response options, critiqued and validated items, and removed or added items for appropriateness. Finally, the RTISES was piloted using web-based survey software, to which 184 respondents serving the pre-K through 12 population responded (Barnes & Burchard, 2011).

Internal consistency based on 58 standardized items using Cronbach's alpha was .98, and of these 58 items, 57 of them had correlation coefficients over .30, with most ranging between .60 and .80, and with all being statistically significant at the .001 level. In addition, an 8-item subscale measuring general self-efficacy was included in the pilot study using a factor analysis and a principal component analysis to generate initial values. The correlation between general self-efficacy and the RTISES total score was positive but not strong, $r(155) = .14$, $p = .08$. Therefore, these eight items were not included in further scale analyses. A Correlation Matrix was run in SPSS to determine which items loaded onto each of the five main factors and to help also determine if cutting certain items would remove necessary factors or information (Barnes & Burchard, 2011).

The *Multi Tiered Instruction Self-Efficacy Scale* (MTISES) is a 28-question Likert-type survey that measures teachers' self-efficacy with RtI. Each question has five answer choice options that evaluate a teacher's need for training by choosing from any of the following five options: 1 = I'll Take Anything, 2 = I'm Starting to Get It, but I Want Lots More, 3 = I Do This, but I Could Benefit From More, 4 = I Don't Feel the Need for More, and 5 = I Feel Ready to Help Others.

The 28 questions are clustered based on concepts with the first few questions asking teachers how confident they feel differentiating instruction for a variety of

learners; the second set of questions looks at adapting learning activities to engage students with a variety of needs; the third set of questions asks teachers about their self-efficacy with allowing students to demonstrate learning in a variety of ways to accommodate their individual needs; and questions 10-14 look at how confident the teachers feel finding research-based books and articles relevant to their students' needs, evaluating them, and then determining which research is best for their students and implementing the research in their classrooms.

The second half of the survey uses questions to ask teachers about their confidence in working with grade level specialists to assess student learning needs and solve them. Questions 19-22 evaluated teachers' self-efficacy with using assessment tools to clarify problems for struggling students and then to fuel instruction with the assessment results, while the next set of questions evaluated teachers' need for professional development when it comes to making decisions about academic instruction for individual students using data from student progress monitoring. The final set of questions ask teachers about using teaching techniques described in research based books and articles to design interventions with a team and then implement the interventions, with the final question evaluating a teacher's confidence with identifying at-risk students as soon as their learning needs are evident.

To estimate reliability, Cronbach's alphas were calculated for subscales to measure internal consistency. Cronbach's alphas for subscales ranged from .789 for Meeting Needs of English Language Learners (ELL) to .952 for the Total Scale, both of which are considered very good to excellent (Salkind, 2014). Finally, it was determined

that a shorter version of the scale using only 28 questions measured the same constructs and was equally as reliable (Barnes & Burchard, 2011).

This scale was chosen for the present study due to its accuracy in targeting the topic of RtI, its specific questions for looking at the variety of populations that teachers must work with, the multitude of processes and assessments involved in the RtI process, and the trainings that would be required to learn to implement RtI correctly. In addition, due to the MTISES' accuracy in evaluating teachers' sense of self-efficacy with RtI, the scale did not need to be adjusted or adapted in any way thus maintaining its high level of validity.

Data Collection Procedures

Quantitative

Prior to data collection, the researcher gained approval from the University of Houston-Clear Lake's (UHCL) Committee for Protection of Human Subjects (CPHS) and also from the participating school district's Institutional Review Board (IRB) in which the study took place prior to collecting any data (see Appendix C). Following approval, historical archives of the I-station data were collected from the fall of 2016's initial September assessment in conjunction to the data that was collected automatically through the I-station intervention and assessment program for the May/Spring 2017 assessment. All elementary level students on the RtI campuses within the school district were piloting I-station reading intervention and assessment as part of their Tier 1 RtI.

In addition, a purposeful sample of teachers who were assigned to the Kindergarten through 4th grade classrooms participating in the I-station RtI were asked to volunteer to complete the *Multi-Tiered Instruction Self-Efficacy Scale* (MTISES)

regarding their self-efficacy in respect to implementing RtI (see Appendix B). Surveys were delivered with self-addressed and stamped envelopes to the principal on three out of four campuses. The principals then explained the surveys to staff and distributed them telling the teachers to return them in the stamped envelopes. The fourth campus principal set up a staff meeting after school where surveys were distributed and collected within the meeting time.

The campus where surveys were handed out and collected during staff training had a 100% return rate at both the pre and post-survey administrations with a total of 19 surveys making up 54% of the total surveys collected. The campuses where surveys were dropped off and asked to be mailed back or were distributed and collected via mail had a much lower return rate (19% for the two South campuses and 44% for the North Low SES campus due to interview taking place on the campus).

Each survey contained a survey cover letter (see Appendix D) that explained the study along with details on how to contact the researcher or the faculty supervisor with concerns. The cover letter stated that participation is voluntary; the approximate timeframe to complete the survey; and that personal identifying information would be kept confidential. Surveys were mailed to the teachers' principals and distributed and collected by them. Each survey came with an envelope containing pseudonym information to help maintain confidentiality. At all times, data was secured in the researcher's office within a password-protected folder on the researcher's computer and on a flash drive that remained at the researcher's private residence. Upon completion of the study, the researcher will store the data for five years at her private residence in

locked filing cabinet drawers, which is the required time set forth by CPHS and district guidelines. Once the deadline has passed, the researcher will destroy all data files.

Qualitative

After receiving approval from the school district and CPHS, qualitative data was collected through a series of individual interviews that were conducted in person. Emails were sent to all Kindergarten through 4th grade teachers on all four campuses requesting volunteers willing to participate in the interview (see Appendix A). It was explained that each interview would take about 10-20 minutes and that the researcher would be willing to come to the interviewee's location or a mutually agreeable location on a date and time of the interviewee's choosing. One teacher in each grade from each campus responded and participated. This allowed for analysis of trends between campuses, across grade levels, and between grade levels. Once participants emailed back their willingness to participate, they were sent individual emails, or a series of emails, to set up the date, time, and location. In exchange for volunteers' participation, a \$5.00 gift card was sent through the mail thanking them afterward, or their coffee was purchased for them at the meeting location.

Upon arrival, the researcher introduced herself, recited a very brief explanation of the purpose of the study, and conducted approximately five minutes of small talk to mutually familiarize the participant and the researcher, and to build trust. The researcher then reviewed the Informed Consent forms with the participants and obtained signatures on the form (see Appendix F). A copy of the form with contact information for the researcher and her supervising professor was given to the interviewees to keep. It was requested of the participants to record the interview with an explanation that there would

be two recorders in case one malfunctioned. In addition, the recorders were placed in front of the participants and they were told they would be controlling them so that if at any time they felt uncomfortable or wanted the interview to stop, they could stop the recorders and end the interview. Once it was established that the participants did not have any questions, the interview was conducted.

In the original pilot interviews, one first grade teacher from each campus was interviewed. Each interview lasted between 10-12 minutes. After the initial two pilot interviews, an additional question was added to clarify who participates in the RtI meetings because the first two interview participants would use a collective “We” and never defined who these participants were. The researcher added the additional question to ensure they had knowledge of the required participants and were just omitting it naturally, and not due to a lack of knowledge. Preliminary analysis of these interviews indicated the questions addressed the desired content and provided promising results.

The final interview consisted of 28 questions that were compiled into an interview protocol, which was adhered to for each participant (See Appendix E). The questions were developed based on information gathered and analyzed from the pilot surveys that had been sent out regarding teacher self-efficacy with RtI. Volunteers were interviewed using the protocol in the hopes to collect information from their perspectives regarding their experiences with RtI and potential obstacles or barriers to implementing RtI. Some flexibility was introduced into each interview in the cases where a follow-up question was needed for information a participant gave, or clarification of wording was given when the participant was unsure of the question being asked.

After each interview, the recording was then uploaded to the researcher's personal computer and also saved to a personal flash drive for safekeeping. Each version was password protected to ensure confidentiality of the participant. Once interviews were uploaded to the computer, each interview was transcribed word for word into a word document and then up loaded to the NVivo program for data analysis. In addition, two district-level staff members in charge of RtI for the district and who had helped to develop and implement the current RtI program were interviewed to obtain context of the RtI program.

Data Analysis

Quantitative

Following data collection, the data were downloaded into an Excel spreadsheet and transferred into SPSS for statistical analysis. To answer Research Question 1 regarding students' reading fluency using I-station intervention, data were collected through the I-station reading fluency assessment and analyzed using a paired samples t-test to determine student growth from the beginning (August) and end (May) of the 2016-2017 school year. This means that each student's individual pre-test score taken in September was compared to their final score in May (post-test) to look for growth across the year.

To answer Research Question 2, teachers completed the MTISES to determine teachers' sense of self-efficacy from August to May of the 2016-2017 school year. Teachers were originally given the MTISES in August of 2016 prior to the district's trainings for the year. Teachers were required to attend trainings and participate in coaching each month as a part of the RtI implementation. Following trainings and

coaching for the year, the teachers were again administered the MTISES in May. These scores were then analyzed to look for growth across the year with the goal being that each teacher's self-efficacy increased by the final survey. The data were analyzed using descriptive statistics (percentages of responses) at the individual question level, and with a paired samples t-test with significance value of .05. Total responses were collapsed, and given this Cronbach's alpha was calculated. The scale had a high level of internal consistency, as determined by a Cronbach's alpha of 0.95.

Qualitative

To answer Research Question 3, a constant comparison approach (Creswell, 2009; Creswell, 2013) was used to look for themes amongst the data, meaning that interview transcriptions were constantly compared to each other to look for themes. This approach was selected to allow for constant adjustment to the interview process as needed. If no common themes were emerging, the interview questions could be reevaluated to determine validity of their questions, or if the data being gathered was not useful, then the questions could be adjusted to target the necessary content. Each new interview and comparison of codes furthered this honing of data. In the case of this study, the interview protocol was adjusted after the first two interview to better evaluate the targeted topic.

As a part of this analysis process, coding was used. Specifically, the constant comparison approach was implemented as follows: the researcher conducted each interview, then responses were compared to previous ones to look for patterns or themes in the responses to determine if there were consistent themes that emerged. This process was completed after each interview was conducted. Specifically, an interview would be

conducted; the researcher would then transcribe the interview as soon as possible, upload it into the NVivo software, and then immediately code the interview.

Upon completion of the next interview, the same process was completed and then the codes were compared to the previous interview to look for common emergent themes, and the process was repeated until saturation was reached. Codes were consistent from the first interview through the last as responses held fairly consistent between interviews (not unanimous, but consistent). To identify the themes, the researcher coded responses based on the type of response by assigning colors to each type of response (ex: pink related to staff resources, blue as time resource, etc.). Once the interviews were coded and themes began to be identified, the researcher identified whether any patterns could be combined into larger overarching themes by reanalyzing the codes and themes. Following this process, a peer of the researcher who was trained in the same qualitative research class and was supervised by the professor reviewed the codes and themes to ensure validity of the coding process. Following the peer review process, quotes were pulled from the interviews to support the themes and subthemes.

Qualitative Validity

To ensure validity of the qualitative process, several methods were used to evaluate the data collected: peer debriefing, triangulation of data, and member checking. Peer debriefing was done after all of the interviews were transcribed. A peer who was trained in the same techniques by the same professor coded the transcriptions separately from the researcher. This peer was chosen by the qualitative professor based on her knowledge of the coding process and her knowledge of the content of this study. Following this, the codes were compared to look for consistency. Triangulation of data

was accomplished by comparing the survey responses on the MTISES with interview responses and the I-station data collected. Finally, sending transcriptions of the interviews to the interview participants to ensure accurate representation of their interviews completed member checking.

Privacy and Ethical Considerations

The researcher gained approval from the UHCL's CPHS and the IRB of the school district in which the study took place before any data was collected. A survey cover letter and copy of the survey was given to all teachers at the participating campuses prior to each interview (see Appendix D) along with having them sign informed consent. The cover letter stated that participation was voluntary; the approximate timeframe to complete the survey; and that personal identifying information would be kept confidential. Confidentiality was maintained through the use of pseudonyms of interview participants and campuses within the reporting of findings, along with keeping all files in a locked drawer at the researcher's home and at all times, data was secured in the researcher's office within a password-protected folder on the researcher's computer and on a flash drive that remained at the researcher's private residence. Upon completion of the study, the researcher will maintain the data for five years in a locked filing cabinet at their private residence, which is the required time set forth by CPHS and district guidelines. Once the deadline has passed, the researcher will destroy all data files.

Research Design Limitations

While care was taken to control for confounding variables as much as possible, conducting research in naturalistic settings, such as schools, ensures total control is virtually impossible. Therefore, the following limitations may exist within this study.

First, not every student is likely to remain within his or her same class, school, and district throughout the study (the school district selected is a large school district, which has a fluid student body that frequently includes students who move into and out of the district boundaries, therefore data is gathered or lost accordingly). Second, data was only collected based on a single school district in southern Texas, limiting its ability to be generalized to other school districts or other states. Third, baseline data was solely based upon initial assessments through the I-station program, and therefore may not be true baseline data (each student was compared to his or her own individual baseline, not a population or sample baseline).

Fourth, given that the data from this study was shared with the school district it was being conducted in as a part of the agreement with the district, this could alter teacher responses in their interviews. Fifth, Chambers et al. (2011) pointed out that even teachers who are certified in the area of reading can have a difficult time and be challenged to close the gap between a struggling reader and his or her grade-level expectation, so this is a natural limitation that exists within the definition of the study. Sixth, coaching and professional development can vary widely based on who is implementing it and the skill of the “coach.” Therefore, it is possible that despite the best efforts of the district to train teachers on use of the program, the coaches they hired or the trainings and professional developments they designed were ineffective given the skills of the trainers. Seventh, it is possible that during interviews, teachers gave responses they felt the researcher was looking for or were not honest in their responses for fear of repercussion when the results are shared with their district.

Conclusion

The purpose of this study was to determine if implementing Tier 1 RtI at the elementary school level would create positive effects on all students' classroom success, specifically in the area of reading, and if as part of the process, using professional development and coaching teachers in proper implementation of RtI would increase their sense of self-efficacy towards RtI.

This chapter provided an overview of the research problem, operationalization of theoretical constructs, research purpose, questions, hypotheses, research design, population and sampling selection, instrumentation to be used, data collection procedures, data analysis, privacy and ethical considerations, and the research design limitations of the study. Chapter Four presents the data and reviews the results of the data analyses.

CHAPTER IV

RESULTS

The purpose of this mixed methods study was to determine if implementing Tier 1 RtI at the elementary school level influenced student-reading achievement (Creswell, 2009). Student reading fluency was measured using the I-station reading curriculum and computer program; results were analyzed using a paired samples t-test. Teachers' sense of self-efficacy, when it came to their implementation and use of the RtI process, was evaluated using the *Multi-Tiered Instruction Self-Efficacy Scale* (MTISES) given twice throughout the year as a pre- and post-survey. Results were evaluated using percentages to analyze individual survey items and a paired samples t-test. Perceptions of classroom teachers towards the RtI process were evaluated through interviews and the data was analyzed using a constant comparison approach that looked for common emerging themes. This chapter presents the results of the quantitative and qualitative data analyses of this study.

Context of the RtI Program

It is important to understand the context of the RtI program within the district when interpreting the results of this study. According to interviews with the district level personnel in charge of RtI, all teams were trained to use the cut score on the oral reading fluency assessment only and the Phonemic awareness fluency assessment for (K-1) at the 20th percentile. In addition, all teachers were trained to use the computerized lessons in

Tier 1 during stations/centers or during guided reading. They were also taught how to use the individualized downloaded lessons for Tiers 2 and 3 for more intense instruction.

Expectations by the district is that the programs would be used routinely and effectively with their students as part of Tier 1 instruction, meaning at a minimum of 30 minutes a day, but with the intention of more (since centers/stations and guided reading happen almost daily). To support teachers and staff, the district staff also planned training/coaching every month for teachers to help them understand the data from the program; to help them understand how to effectively use the program; and to provide support for their implementation of both I-Station and RtI. District personnel indicated that campuses and teachers should be aware of these trainings. Results were analyzed and interpreted keeping this context in mind while remaining open to teachers' perspectives and experiences.

Participant Demographics

For the teacher surveys, a total of 113 surveys were sent out to all teachers at the four participating campuses who taught Kindergarten through 4th grade. Of these initial 113 surveys, 65 surveys (58%) were completed and returned for the Fall 2016 data collection (pre-survey). On the follow-up data collection, 48 of the original 65 participants completed the post-surveys (74%). Demographic information could not be collected as all surveys were returned with pseudonym information in place of teacher names and campus information in order to protect their identities. I-station reading achievement data were collected on 2,758 students across the four campuses and in grades Kindergarten through 4th grade. Due to high mobility rates within the district, of the 2,758 students who participated in the I-Station reading intervention, 1,339 completed

both a pre- and post-test in August and May of the 2016-2017 academic school year.

Student demographic data is presented below in Table 4.1.

Table 4.1

Student Participant Demographics

	Frequency (n)	Percentage (%)
1. Campus		
North High SES	224	16.7
North Low SES	367	27.4
South High SES	390	29.1
South Low SES	359	26.8
2. Gender		
Male	1,081	39.2
Female	959	34.8
Unidentified/Missing	718	26.0
3. Race/Ethnicity		
African American	325	24.3
Hispanic/Latino	556	41.5
White	382	28.5
Asian	64	4.8
Other	11	0.8
4. Grade Level		
Kindergarten	354	17.4
First	384	18.8
Second	405	19.9
Third	424	20.8
Fourth	473	23.2

Research Question 1

Research question one, *Is there a statistically significant mean difference in student reading achievement from pre- to post-assessment following RtI intervention?*,

was answered using a paired samples t-test to analyze the difference in scores between students' pre-test scores on I-station taken in September and their post-test scores on I-station taken at the end of May. Results are presented below in Table 4.2. Results of the paired t-test indicated that there is a statistically significant mean difference between students' pre- and post-test scores on the I-station reading fluency assessments, $t(1,338) = -22.34$, $p < .001$, $d = .053$ (small effect size). The average pre-test score ($M = 535.2$) was lower than the average post-test score ($M = 570.7$) indicating that students made progress in their reading fluency throughout the academic school year.

Table 4.2

Paired t-test: I-Station Reading Test Pre- and Post-Scores

I-Station Reading Scores	N	M	SD	t-value	df	p-value	d
1. Pre-Scores	1,339	535.2	645.3	-22.38	1,338	<.001*	.053
2. Post-Scores	1,339	570.7	685.0				

*Statistically significant ($p < .05$)

Research Question 2

Research question two, *Is there a statistically significant mean difference in teacher self-efficacy in using RtI from pre- to post-RtI training?*, was answered using a paired samples t-test to analyze the difference in self-efficacy scores between the teachers' pre-intervention (coaching and professional development) administrations of the MTISES in August and their post-intervention administrations in May of the 2017 semester. Results of the paired t-test indicated that there was no statistically significant

mean difference between the teacher’s pre-self-efficacy (M = 91.2) and post-self-efficacy (M = 93.5) following RtI training, $t(47) = -1.071$, $p = .289$. These results suggest that no matter what area of RtI on which the teachers were being evaluated, professional development and coaching did not have a significant effect on their self-efficacy. Results are presented below in Table 4.3.

Table 4.3

Paired t-test: MTISES Pre-scores and Post-scores

Teacher Self-Efficacy	N	M	SD	t-value	df	p-value
1. Pre-Self-Efficacy	48	91.2	13.4	-1.071	47	.289
2. Post-Self-Efficacy	48	93.5	14.5			

*Statistically significant ($p < .05$)

In addition, percentages were calculated on each individual survey item to help identify which areas of self-efficacy in regards to RtI changed (see Table 4.4). Each item on the MTISES used a 5-point Likert scale (1 = I’ll Take Anything, 5 = I Feel Ready to Help Others) in regards to their training and confidence using RtI. For the most part, teachers collectively felt like they were already implementing the majority of RtI procedures and skills but that they could use additional training in all areas. Specifically, when it came to their ability to differentiate instruction for different learning styles, ability levels, and English Language Learners (ELL’s), teachers consistently responded with they could do this but could benefit form more training (*I do this, but I could benefit from More*) before and following the RtI training. Approximately 58.0-67.0% of teachers

fell in this category on the pre-survey with 56.0-65.0% remaining in the category on the post-survey.

For the questions regarding their ability to adapt classroom activities to a variety of learning styles, ability levels, and ELL students, teachers again responded with their belief that they were already doing this but could use more training (*I do this, but I could benefit from More*) regardless of pre- or post- survey response. Responses ranged from 60.0-65.0% on pre- survey responses to 50.0-65.0% on the post- survey response. This pattern remained consistent for the teacher's belief in their ability to help their students demonstrate their learning despite a variety of learning styles, ability levels, and ELL. On the pre-survey responses ranged from 58.0-60.0% believing they were already achieving this skill but could use more training (*I do this, but I could benefit from More*) to post-survey responses falling between 50.0-56.0%.

When it came to finding research to support the needs of their students, teacher responses went from 52.1% falling in the third category (*I do this, but I could benefit from More*) to post-survey scores being 43.8% in the third category (still the majority). For their ability to identify valid research for effective practices in their classroom, the highest percentage of teachers (45.8% pre-survey and 39.6% post-survey) reported that they did not feel the need for more training (*I don't feel the need for More*). Teachers also reported that they did not feel the need for more training when it came to evaluating research of worth while classroom practices (*I don't feel the need for More*; 41.7% pre-survey and 45.8% post-survey).

Teachers reported that they were already comparing the effectiveness of the best fit of specific practices for their classroom but could use more training (*I do this, but I*

could benefit from More) regardless of pre- or post-survey assessment with 41.7% responding in this category on the pre-survey and 50.0% responding in this category on the post-survey. When it came to incorporating new research-based practices into their classrooms, the teachers continued the pattern of feeling like they were doing this but still needing more training (*I do this, but I could benefit from More*; 52.1% pre-survey, 58.3% post-survey). The trend of feeling like they were using the skill but still needing more training (*I do this, but I could benefit from More*) continued for working with grade level and content experts to assess learning needs (54.2% pre-survey, 47.9% post-survey), and to solve learning needs of students (50.0% pre-survey, 60.4% post-survey).

Teachers also felt they were capable but needed more training to work with specialists such as school psychologists or speech pathologists (*I do this, but I could benefit from More*) to assess learning needs (52.1% pre-survey, 43.8% post-survey), and to solve the learning needs of students (54.2% pre-survey, 43.8% post-survey). In addition, they felt they had the basics of using data and being able to identify the appropriate tools to obtain data to identify the problems with struggling students (43.8% pre-survey, 47.9% post-survey), and also to track the student's progress (56.3% pre-survey, 50.0% post-survey) but could use training in both areas (*I do this, but I could benefit from More*). Teachers did not feel like they needed any more assistance with using Universal Screeners to determine which students were at risk and reported feeling like they did not require any further training (*I don't feel the need for More*; 37.5% pre-survey and 39.6% post-survey). As a supplement to using universal screeners, the teachers felt equally as confident with using Curriculum Based Measures (CBMs) to help with instructional planning and did not feel they needed more training (*I don't feel the*

need for More) regardless of pre- or post-survey assessment (47.9% pre-survey, 47.9% post-survey).

The teachers actually reported a decline in self-efficacy when it came to being able to make decisions about academic instruction for individual students reporting that they did not require more training on the pre-survey (*I don't feel the need for More*; 47.9% pre-survey), but noting on the post-survey that they were using the skill but did feel the need for more training (*I do this, but could benefit from More*; 47.9% post-survey). Teachers continued their trend of feeling like they had the basics when it came to improving instruction based on student progress but would like more training (*I do this, but I could benefit from More*; 45.8% pre-survey, 47.9% post-survey), and using teaching techniques from research articles and books (54.2% pre-survey, 45.8% post-survey). They also felt confident they were using interventions to address specific student learning objectives (64.6% pre-survey) but wanted more training (*I do this, but I could benefit from More*; 64.6% post-survey). The same held true for implementing instructional plans for single students or small groups (54.2% pre-survey, 50.0% post-survey). Finally, the teachers felt like they were able to respond to specific learner needs when they first became evident but wanted more training (*I do this, but I could benefit from More*) for being able to identify the needs sooner and respond quicker (54.2% pre-survey, 60.4% post-survey).

Table 4.4

Percentages of Responses for Questions on the MTISES

Survey Questions		I'll Take Anything	I'm Starting to Get It, But I Want Lots More	I do this, but I could benefit from More	I don't feel the need for more	I feel ready to help others
1. Learning Styles	Pre	0.0	10.4	58.3	27.1	4.2
-Differentiation-	Post	2.1	4.2	56.3	27.1	10.4
2. Ability Levels	Pre	0.0	8.3	64.6	27.1	0.0
-Differentiation-	Post	0.0	10.4	56.3	29.2	4.2
3. ELL	Pre	2.1	14.6	66.7	10.4	6.3
-Differentiation-	Post	2.1	8.3	64.6	18.8	6.3
4. Learning Styles	Pre	0.0	4.2	64.6	25.0	6.3
-Adaptive Activities-	Post	0.0	8.3	64.6	20.8	6.3
5. Ability Levels	Pre	0.0	6.3	60.4	31.3	2.1
-Adapting Activities-	Post	0.0	12.5	56.3	22.9	8.3
6. ELL	Pre	0.0	8.3	64.6	20.8	6.3
-Adapting Activities-	Post	2.1	10.4	50.0	35.4	2.1
7. Learning Styles	Pre	0.0	14.6	60.4	25.0	0.0
-Demonstrate Learning-	Post	0.0	8.3	56.3	27.1	8.3
8. Ability Levels	Pre	0.0	6.3	60.4	31.3	2.1
-Demonstrate Learning-	Post	0.0	6.3	50.0	37.5	6.3
9. ELL	Pre	0.0	8.3	58.3	31.3	2.1
-Demonstrate Learning-	Post	2.1	10.4	50.0	31.3	6.3
10. Needs of Students	Pre	4.2	4.2	52.1	35.4	4.2
-Finding Research On-	Post	0.0	10.4	43.8	39.6	6.3
11. Effective Practices	Pre	4.2	6.3	33.3	45.8	10.4
-I.D. Validity in Research-	Post	2.1	16.7	33.3	39.6	8.3
12. Worth While Practices	Pre	6.3	6.3	37.5	41.7	8.3
-Evaluate Research-	Post	2.1	10.4	37.5	45.8	4.2

13. Best Fit Practices	Pre	8.3	8.3	41.7	39.6	2.1
-Compare Effectiveness-	Post	2.1	6.3	50.0	39.6	2.1
14. Incorporating New Research Practices	Pre	4.2	10.4	52.1	29.2	4.2
	Post	0.0	10.4	58.3	25.0	6.3
15. Assess Learning Needs	Pre	0.0	14.6	54.2	27.1	4.2
-With Content/Grade Experts-	Post	0.0	12.5	47.9	29.2	10.4
16. Solve Learning Needs	Pre	2.1	12.5	50.0	27.1	8.3
-With Content/Grade- Experts	Post	0.0	12.5	60.4	16.7	10.4
17. Assess Learning Needs	Pre	4.2	16.7	52.1	20.8	6.3
-Work with Specialists-	Post	2.1	20.8	43.8	25.0	8.3
18. Solve Learning Needs	Pre	4.2	16.7	54.2	22.9	2.1
-Work with Specialists-	Post	2.1	14.6	43.8	29.2	10.4
19. ID Problem w/Struggling Kids	Pre	2.1	12.5	43.8	33.3	8.3
-Use Data/ID approp. Tools to get the Data-	Post	0.0	12.5	47.9	33.3	6.3
20. Track Student Progress	Pre	2.1	4.2	56.3	35.4	2.1
-Using Specific Tools-	Post	0.0	6.3	50.0	37.5	6.3
21. Determine At-Risk	Pre	10.4	16.7	33.3	37.5	2.1
-Using Univ. Screener Results-	Post	4.2	20.8	31.3	39.6	4.2
22. Instructional Planning	Pre	4.2	14.6	31.3	47.9	2.1
-Using Results of CBMs-	Post	2.1	8.3	35.4	47.9	6.3
23. Decisions about Acad. Instruction for Individuals	Pre	0.0	10.4	37.5	47.9	4.2
	Post	0.0	10.4	47.9	33.3	8.3
24. Improve Instruction	Pre	2.1	6.3	45.8	39.6	6.3
-based on student progress-	Post	0.0	4.2	47.9	43.8	4.2
25. Teaching Techniques	Pre	0.0	6.3	54.2	31.3	8.3
-from research articles/books-	Post	0.0	6.3	45.8	45.8	4.2

26. Intervention Use -to address specific object's-	Pre	2.1	6.3	64.6	22.9	4.2
	Post	0.0	6.3	64.6	20.8	8.3
27. Implementing Plans -for single students/sm. grps-	Pre	2.1	8.3	54.2	29.2	6.3
	Post	0.0	4.2	50.0	35.4	10.4
28. Responding to Learner Needs when First Evident	Pre	4.2	8.3	54.2	29.2	4.2
	Post	0.0	8.3	60.4	27.1	4.2

Research Question 3

Research question three, *What are the perceptions of classroom teachers towards the value of the implementation of technology-rich RtI?*, was answered using constant comparison of 22 semi-structured interviews of general education teachers at four elementary schools within the same large suburban school district in southeast Texas. From the interviews, responses were assigned to three themes: *knowledge*, *resources*, and *time*. These major themes and subthemes are broken down and explained in depth below.

Knowledge

The first major theme drew from interview questions that asked, “What is your role and responsibility in the district’s RtI mode?” “What do you know about RtI?” “How do you feel about the structure and effectiveness of the tiers,” “How are interventions and instructional methods selected,” and additional questions regarding the district’s procedures and expectations, to how the data was used to make decisions, “how is data used to support student intervention plans,” and whether or not the teacher knew how to modify a student’s plan based on their response to the intervention (Responses drew from questions 3-5, 9-10, 15 & 16 on the Interview Protocol).

The first major theme of *knowledge* was broken down into several subthemes that could all be broadly explained through: the need for more understanding of the overall process, understanding how RtI is meant to work; how the tiers work together to support students; to what happens at the end of each tier; what happens with the overall structure; and how data is used to determine student progress. In addition, subthemes were evident in this area for teachers feeling like they were not viewed as experts in their fields or with the curriculum, and especially when it came to knowing the children, although there were some campuses where staff felt more validated than others as reported in the interviews. An additional subtheme revolved around concern and lack of knowledge of use of data to make RtI decisions; specifically the use of multiple sources of data versus the use of one type of data (unanimously cited as I-Station).

It was apparent through teachers' implicit and explicit statements that they were lacking in knowledge of the RtI processes, the district expectations, and the skills or knowledge to assist students independently or interpret their needs without someone in a supervisory position instructing them. The majority of teachers hinted at the fact that they felt hindered by not having been appropriately trained on the I-station program required for intervention nor adequately instructed on how to interpret the data appropriately, so they did not understand how to qualify a student for RtI, nor how to exit a student from the process. The deficits in knowledge were not restricted to implementing the I-station program, but were pervasive regarding RtI in general, the tiers, and how the whole theoretical framework was intended to be used, causing a breakdown in commitment to the program and a low frustration point for the teachers as they tried to navigate the district and federal expectations for RtI and their knowledge of students and instruction.

However, while most teachers were uninformed, others were genuinely well informed teachers and they were on campuses where all teachers were able to discuss the RtI process, how they used their data, how it was collected, analyzed, and how it was used to make student progress decisions. However, these campuses tended to have staff specifically assigned to the role of RtI (such as coordinators or interventionists), and in these instances, the teachers still relied heavily on the RtI staff to direct them, and were unable to answer specific questions regarding basic knowledge of RtI and instead would defer to their assigned RtI staff. However, these teachers were more encouraging and supportive of the RtI process and included more information regarding the effectiveness of the practice, but were also the least in alignment with the district practices, which will be explained in depth as a part of individual subtheme analysis.

Knowledge was broken down into several subthemes including: a general lack of knowledge regarding RtI (not knowing what RtI is, how to implement it, an understanding or knowledge of student needs and how to address them, knowledge of how to adjust RtI strategies to meet student needs, who is involved in the RtI process, who is responsible for RtI, and who is responsible for which parts of RtI); data sources for RtI (multiple sources versus using only one source); and being viewed as an expert on the students as a part of the RtI process which will be reviewed below:

General lack of knowledge. Each participant was asked the same question, simply: “Can you define RTI?” Of the 22 people interviewed, 14 were able to correctly identify what RtI stands for (Response to Intervention), but only 50% of those who answered correctly could do so without pause, without asking if their answer was correct, without saying that they were nervous about being asked that question, or that they had to

look up the answer prior to their interview. Of those whom could not define RtI, the majority (5 out of 8) were not even able to determine that the “I” stood for intervention. Of the eight who could not identify what it stood for, one said: “I know. It’s one of those where I know ‘I’ is Intervention. And it’s...it’s...No. I could not tell you what the acronym stands for right now,” while the other stated, “Oh my goodness...I don’t know?” The response to this question may not be a reflection on the interviewees, but rather on the training(s) provided to those who are asked to implement RtI from the outset. Concerns with general lack of knowledge were analyzed for frequency of response and were present regardless of years of experience, grade level taught, and campus. The frequency of coded responses is presented in the table below:

Table 4.5

Frequency of Coded Interview Responses for Knowledge

	Frequency (n)
Campus	
North High SES	6
North Low SES	6
South High SES	10
South Low SES	5
Grade	
Kindergarten	5
First Grade	3
Second Grade	5
Third Grade	8
Fourth Grade	6
Years of Experience	
0-5 Years	2
6-10 Years	12
11-15 Years	9
16-20 Years	1
21-25 Years	0
26-30 Years	3

In addition, teachers reported that they did not understand the tiers, let alone what to do with students once they identified a need for help. Specifically, two teachers from the South Low SES campus who taught second grade reported:

[Teacher 1] I understand Tier 1. I understand that you have to start that child where everybody's at. You got to get your documentation, you got to do your documentation. Tier 2...Okay, that we notice, that something, okay, something's wrong. [Teacher 2] And then Tier 3...It's like... Then it's all-out, flashing lights. It's all, okay, we got to get, maybe refer for testing? Or..for? We meet together again and we say Ok, what do we need to do for this kid?

Even the teachers who had more knowledge regarding RtI than others still struggled to understand how the process was expected to work. Out of the 22 teachers interviewed, only three said they understood the tiers and felt they were effective, and those three did not describe them or how they worked, but just stated simply that they understood them and felt they were effective. The other teachers felt they were “muddy,” “ineffective,” or did not understand them, with many reporting something similar to the following a kindergarten teacher with 27 years of experience from the South High SES campus said:

Um, I don't get the tiers. I like the idea. I mean, I can tell from the scores, you know. And if they just told me, 'Okay you have to be, you know, over 20,' I could figure out the rest, but the tiers, what?! I don't...

Implementing RtI. Participants were asked a variety of questions revolving around their role in the RtI model, what they do as a part of it, and basic knowledge. Their responses varied greatly, and only 50% of teachers (11/22) were really sure of what they were expected to do as far as the RtI model and implementing it. One teacher simply stated that she knew she was supposed to implement it. Another teacher from the North Low SES campus with 17 years of experience reported the following:

Um, I am supposed to implement um Tier I RtI and uh, it's become so confused to know what's what...but I basically believe I do the first two steps before RtI III. I'm not quite sure, it's very...it's, its become very grey.

This teacher was not alone though; another teacher, when asked to talk about her role in the RtI process, described that she “will attend any ARD meetings” and that she will “implement any accommodations or modifications” that the student needed. This teacher did not seem to be aware of the fact that she was describing special education, not RtI.

When further asked about the teachers' roles in the RtI process within the district, many of the teachers reported that they felt frustrated with RtI because they had not been trained at all on the basics of RtI, including what RtI is, what the tiers are, how they work, or other basics. A 3rd grade teacher with eight years of experience from the South High SES campus said, "No, nobody has any idea what's going on because it changes every year and our personnel that do it changes every year, and the screener that we use changes every year." This confusion affects how teachers implement RtI.

In addition, many reported not having been trained on the new program (I-station) the district requires as part of their reading RtI with most reporting comments very similar to the following 1st grade teacher with 14 years of experience from the North High SES campus, "Never had any training. No. Nuh-uh." One 1st grade teacher with 17 years of experience from the North Low SES campus noted: "Well I haven't had any I-station training. But yet it's supposed to be so important to the district, so...um. Other than that, training, no." A third grade teacher from the South High SES campus reported:

Like, Tier 1 is just good teaching practices and your monitoring. There's monitored Tier 1, there's kids who are fine. Like, it's all ... Tier 1 is very muddy. It's a very muddy area to be in, and then, once you get past Tier 1, you get bounced back and forth between 2 and 3 as you do well, not do well, do well, not do well. There needs to be a little bit more permanency to the levels.

This quote offers evidence that this teacher did not understand that students are not supposed to be bounced between tiers. The system is set up so that students who progress and improve their ability to grade level move down to Tier 1 (where the general population is), and are not considered to be in RtI (Ogonosky, 2010). Other students who

do not progress move steadily through the tiers and will eventually be referred for evaluation if they do not make progress after all three tiers. It is not a system meant to trap students and prevent them from being exited or moved to where they get the individual type of support they require (be it more intensive intervention or assessment for special education)(Ogonosky, 2010).

Another teacher who had also never been trained on the foundations of RtI or the basics of I-station reported she knew that I-station had a lot of components and lessons that could be used to supplement a student's learning, but that "it's almost too much, we have to kinda figure out what would be best." In fact, only one teacher reported she had had any training on I-Station, and all others cited that they thought they had training by their campus, but were really not sure that it had occurred, or whether they had any at all. In fact the only teacher who could specifically cite I-Station training reported that she only did so because she thought she was at a training for a different program and had already taken the half-day off and did not want to waste the day.

Finally, when it came to implementing RtI, 73% of teachers (16 out of the 22) who were interviewed could not describe the process of exiting a child from RtI. In fact, several were pretty sure this was not a realistic possibility and felt that once students were in RtI, they would always be in RtI, or they would eventually be tested for special education. This concept was stated by the following teacher with 14 years of experience from the North High SES campus: "It's hard for a child to then move out of something that once they've been identified, you know? Because you can obviously see, there's going to be...there's, they're going to need help through the whole way..." while a 3rd

grade teacher with eight years of experience from the South High SES campus reported, “There is no exit because Tier 1 is everybody. You can never leave.”

This last statement puts a type of doom and gloom perspective over the whole RtI process, though a 2nd grade teacher with seven years of experience from the South High SES campus took a more jovial approach while still communicating the same misperception, “Oh, no. I didn’t know there was [a way to exit students] <<laughs>>.” While only eight teachers could not provide accurate information regarding RtI at all, what became an apparent theme throughout the interviews was that if the teachers had no understanding, training, or knowledge of what RtI was and how it was supposed to be practiced or implemented, then they could not be expected to utilize it to support their students effectively or accurately. In addition, because they were not able to implement RtI with fidelity due to a lack of knowledge, many did not believe in it as an effective practice or process and thereby were not invested in it.

Not all teachers lacked knowledge; in fact, those from the South Low SES campus were the best informed and succinctly summarized the process similar to this 3rd grade teacher with eight years of experience from the South high SES campus:

They [the RtI committee] look at the universal screener, there's a percentage cut off, and everybody underneath that cut-off gets flagged as whatever ... Tier 1 ... Tier 1 monitored. If you're flagged twice, then you're Tier 1, for real. If you were Tier 1 and you fall below it again, then you're Tier 2. If you're Tier 2 and you're not making progress, you're Tier 3.

When one looks closely though, even those teachers who appropriately identified the steps in the process of the district’s RtI program, still had a “bare bones” knowledge of

RtI and could not or did not expound upon the details of the process. Their explanations were limited to use of I-Station scores, the district mandated screener times, and the movement between the tiers at these allotted times. They were familiar with expectations but not what to do if a student did not follow traditional procedures or progression.

However, all participants were individually asked if they had clearly been communicated the district's procedures and expectations for RtI. Each one of them responded hesitantly with a yes, did not answer the question but instead spoke of something else, or said they had not. Those who said yes spoke directly of having to score at the 20th percentile on I-station for phonemic awareness and felt that this was the sum total of RtI for the district's reading plan, which did not answer the question that was posed to them, but based on their perceptions, may have been right on target.

In addition, sixty-four percent of teachers (14/22) reported similar concerns to the following from a 3rd grade teacher from the South High SES campus with eight years of experience: "Every year, the expectations and procedures are different. So, every year, we get new expectations and procedures. For like, the past four years, it's been different every year because they're trying to make it better." Whereas a 2nd grade teacher with eight years of experience from the North High SES campus explained her understanding of the district's expectations as, "I'm not sure. (Laughs) I guess not clearly... I don't (laughs)... I'm not sure." However, this was more descriptive than a first grade teacher with 10 years of experience from the South High SES campus could explain when she responded with "um....<<shakes head no>>."

When the teachers were asked if they felt that all the stakeholders who were required to be a part of the RtI process had been communicated the district's procedures

and expectations, again, 12 out of the 22 teachers or 55% reported that they did not think everyone knew what was expected of them. Of the 10 who stated that they felt everyone was clearly communicated the expectations, two replied in the affirmative, but then clarified that they felt this may only be for their campus, and two also hesitated when they responded and made their “yes” sound more like a question than a statement.

Who is responsible for RtI. Teachers reported that they are not being trained on how to take data or on what data are appropriate to be taking in general for decision making, and then they are frustrated because they are spending considerable amounts of time taking data in the classroom that sometimes ends up not being the correct data for referral to special education at the end of Tier 3 which would be the end result of RtI if a student does not respond. One teacher felt it was someone’s responsibility to teach her the skill, but was unsure of whose responsibility it was as seen with the following quote:

<<long pause>> I think our Licensed Specialist in School Psychology (LSSP) wants a lot of measureable data from week to week...and we’re not trained on how to keep that data from week to week. And I think that should be the interventionist’s and Alternate Lead Teacher’s (ALT’s) responsibility to help us know if we’re putting the time into working with these kids extra, how-what is the specific way you want us to measure that. –North Low SES Teacher, 17 years experience-

Another Kindergarten teacher with 14 years of experience from the North High SES campus took a less active approach, feeling like it was not her responsibility (to take the data), and that was where her involvement ended: “<<big inhale>> No. Honestly. I’m not in charge of it, so no. I do not know, I should know, but I do not know.” Unfortunately,

frustration with the process may lead teachers to feel this way, when in fact it is their responsibility to collect the data that drives the decision-making process according to the district procedure. Even campuses with RtI support staff still do not collect the data, but rather help support teachers in this process (this was communicated in teacher interviews and interviews with district staff).

Part of this issue may stem from the fact that all of the teachers reported that when their students are placed into RtI, they are given the data sheets to collect data and nothing is explained to them; they just fill out the data sheets and turn them in when the next RtI meeting is held. Several teachers reported information similar to the following 1st grade teacher with 10 years of experience:

They would give me the paper, like what are you doing and I just have to fill out the information as to what I am doing for them, how often do I do it. So I just fill out the paper work and what I'm doing. –South High SES Teacher, 10 years experience-

This was not the case at all campuses as some of the teachers at the South Low SES showed the researcher data sheets that outlined specifically which assessments to give, when to give them, and what scores or data to write down. However, this type of specificity appeared to be campus specific because of their RtI support staff member and not a district procedure/resource.

Across all campuses, it appeared that the teachers sought to do what was right, but were unsure of the correct process. However, those campuses that had RtI support personnel or reported having supportive leadership appeared to be more informed about the district RtI policies and were able to describe the purpose for their documentation,

what documentation was needed, and how to take it, but could not articulate how it was used, as seen with a 3rd grade teacher with 17 years of experience from the North High SES campus:

As far as, if we move them to different tiers or not, depending on how they did?

Well, I guess that'd be it. Just, we look at their data, we look at data with I-Station and any kind of assessments the teacher did, or the, the, our RtI person, and then we go from there.

Although teachers are expected by the district model to be a part of the decision making process in the RtI meetings, there was more a sense that teachers brought data and then relied on others on the committee to tell them the decisions that were made and what to do, instead of being an invested stakeholder regardless of their experience and knowledge. By not participating as a committed member of the team, this only perpetuates the lack of responsibility of the teacher towards the process of and knowledge of the RtI process.

How to select and modify interventions. When teachers do not have an understanding of how students are qualified for RtI intervention in the first place, then it is logical they would not understand how to adjust strategies and interventions for students who are not being successful or responding to intervention. Teachers did not understand what made a student a candidate for the RtI process so they would not be able to then determine the skills or area to target and then adjust their interventions appropriately. As far as they were aware or reliant upon, they simply reported scores to a committee, and if they met a cutoff on I-Station, then they (the teachers) did what they were advised by the committee to do with respect to RtI.

Specifically, teachers were asked how instructional methods and interventions were selected for students in need of intervention. A variety of responses were given, but no teacher seemed to truly have a grasp on how these decisions were made for students. One teacher stated that interventions and instruction were made from “best practices” (citing commonly used jargon or technical language), while seven denoted that they came from individual student need. Four teachers stated that it was their choice what students received, and five stated openly that they had no idea, with one 2nd grade teacher with 11 years of experience from the South High SES campus noting, “It’s kind of like this mysterious veil. So who makes these decisions? I don’t know.” Four teachers were able to identify that intervention came from I-Station and that district level staff members determined that RtI would use I-Station [as the sole data source] and what the cut-off points were.

When asked if the teachers had been trained to modify the intervention plans based upon how individual students respond to them, only three teachers stated that they had been with no clarification from whom, although three additional teachers stated that while they had not been trained to do so, they felt confident that if they needed to modify a plan, they could access their RtI support staff or principals (because not all of them had an RtI support staff on campus) for help. The most common response was (36%) a simple “no” (8/22), while others explained that they would have to take the data back to their committee, sit down for another meeting, and determine as a committee how to adapt. One 1st grade teacher with 10 years of experience from the South High SES campus felt she had been trained to modify interventions, but her response revolved around 504 and

Admission Review and Dismissal (ARD) committees rather than RtI committees and belied the fact that she did not have knowledge on the topic at hand as seen below:

I have to...document any of my students who are struggling. I will attend any ARD meetings that we will have whenever the students get onto Tier III and just make sure that I am meeting my students' needs um, depending on the tiers that they are in also and what accommodations that I am doing for them..or modifications as well.

In addition, two teachers felt that while they had not been trained, it was just good teaching practices to be able to adapt to a student's needs; a 4th grade teacher with 22 years of experience from the North High SES campus stated, "I don't know that I've specifically been trained on that, no. I'm hoping that my experience helps me to figure out how to do that. But I don't know that I've specifically been trained on that."

A 1st grade teacher with 17 years of experience from the North Low SES campus reported: "Yes...<<long pause>> I mean I guess I'm relying more on my background out of the classroom. I don't know if most general ed teachers have [been trained on modifying intervention plans]," indicating that she was relying more on training from when she served as an instructional specialist and not necessarily any training that she received in the position of being a teacher. Overall, teachers reported a general lack of knowledge that ranged from the definition of RtI, all the way down to a lack of knowledge of how to select and modify interventions, and who is responsible for taking data on them.

Expertise. Under the theme of *Knowledge*, it became a common concern reported by teachers that their expertise in the classroom, with the curriculum, with teaching

methods, and specifically with their knowledge of the students was often ignored or overlooked for use of a single data point (meaning the district only looks at student scores on the I-Station reading fluency screener to determine whether the student qualifies for RtI or not). Regardless of the campus or grade level taught, teachers consistently reported that they did not feel like they were viewed as experts of their students when they were being included in the RtI process and teachers felt unheard in meetings. The frequency of coded responses is presented in the table below:

Table 4.6

Frequency of Coded Interview Responses for Not Being Viewed as An Expert (n)

	Frequency (n)
Campus	
North High SES	3
North Low SES	5
South High SES	15
South Low SES	3
Grade	
Kindergarten	3
First Grade	4
Second Grade	5
Third Grade	8
Fourth Grade	4
Years of Experience	
0-5 Years	2
6-10 Years	10
11-15 Years	9
16-20 Years	1
21-25 Years	1
26-30 Years	1

The only exception to this was a difference in years of experience where younger teachers reported this concern more frequently than those teachers who had over 15 years of experience. Out of the seven teachers with 15 years of experience or more, only one referenced not feeling like she was treated like the expert, while the remaining six did not share this concern (i.e. did not reference it in either a positive or negative manner). This trend is likely due to the fact that teachers with more years of experience reported that they no longer cared what was recommended by the district or committees but would often do what is best for students regardless of district recommendations, and therefore did not show concern for being viewed as knowledgeable. Specifically, a 2nd grade teacher with 11 years of experience from the South High SES campus put it this way:

I do everything that I can for these kids but then when I feel like my hands are bound by the, this RtI process and it's ridiculous and we're not servicing the kids that we need to be servicing. And these kids can be successful. And these kids can know what it's like to be successful in an academic setting. And we set 'em up to fail. And it makes me furious. It makes me want to stop, get out of teaching to get my PhD to go into policy so I can stop this from happening cause I see what it's doing to our kids and people are completely right, our system is broken. And the only way we can fix it is to have people that know what they're doing fix it, not politicians, not corporations. People that know what they're doing and live this life with these kids. Why don't they listen to us? Why don't they listen to the teachers that know what they're doing? To help our, to help our children. It seems to me like a conspiracy <<laughs>> so whether or not they populate, I do something about it [meaning whether they score below the 20th percentile]

Otherwise, the teachers frequently expressed their discontent that students they knew needed help were unable to get it, but that those who maybe just had a bad day were now being targeted and intervened with for a full cycle of RtI. Specifically, a first grade teacher with six years of experience reported:

I do think that teachers should be given more of a voice when it comes to determining whether a student needs or doesn't need intervention.... So, you know I got the support of my principal and he did actually tell me that I needed to tell the interventionist that we needed to move that kid in a tier but unfortunately she can't do that. Not because she doesn't want to, it's just policy of the district. The kid is not populating on I-Station [meeting the district cut off], therefore the kiddo won't be moved to interventions, even though the student is not reading at a level 3 and the expectations for the first 9 weeks was a 6. [Um] So that, that has been frustrating because again, we're wasting time..... She[the RtI support staff] actually took them, both of my kiddos that I was concerned about and did like an on-demand I-Station assessment for the one skill that they scored below the 20th and they scored fine. So, I guess that, that carries weight. And that is frustrating. Because I know what I observe in the classroom when I'm asking them to work independently and they can't stay with the group because they can't read, or you know they're behind in their skills.

A third grade teacher from the same campus said it more succinctly, “The kids who are on my list for RtI are not the kids that are failing because that one day, they did well on that computer test, and [or] that one day, they didn't do well on that computer test.”

Another third grade teacher from a different campus reported:

Um, just it is a little frustrating. I hate to see kids struggle...and I feel like my hands are tied, because they're like, 'Now I need you to do this.' And, I mean, sometimes I feel like they aren't listening.

As demonstrated in the previous quotes, the majority of teachers reported that they were frustrated with not being listened to. However, three teachers from the North Low SES campus reported that they did feel heard and that their principal and instructional coaches would support them, but even then, they noted that they were not sure it would be beneficial as seen with a 3rd grade teacher from the North Low SES campus with 11 years of experience who said, "If you go talk to them, I mean, they'll ... they back you up, most of the time I would say. I would say 90% of the time. But sometimes I feel like they're kind of confused [and do not understand the process any more than the rest of us]." This highlights that teachers are not viewed as the experts of the curriculum and their students, but even when they are, their support personnel and administration do not have any better understanding of RtI than they do and therefore cannot help the teachers.

Data sources. The final concern under the broad theme of knowledge was a discrepancy in knowing whether decisions were based on a single point of data (I-Station data) or whether decisions for students in RtI were based off of multiple types of data. This theme was different than a lack of knowledge or understanding because teachers were specifically citing the district policy of using the I-Station cut-point of the 20th percentile to qualify students (not expressing a lack of knowing how to qualify students). Concern with using only one data source to make decisions was universal and reported by teachers regardless of the years of experience, the grade level taught, or the campus. The

frequency of coded responses for concerns regarding using only one data source is presented in the table below:

Table 4.7

Frequency of Coded Interview Responses for Using Only 1 Data Source (n)

	Frequency (n)
Campus	
North High SES	7
North Low SES	11
South High SES	21
South Low SES	2
Grade	
Kindergarten	3
First Grade	11
Second Grade	15
Third Grade	9
Fourth Grade	3
Years of Experience	
0-5 Years	2
6-10 Years	15
11-15 Years	15
16-20 Years	5
21-25 Years	2
26-30 Years	2

Across all settings, teachers reported concerns that the system was targeting the wrong students because decisions were being based solely on a student’s I-Station fluency score. Specifically, teachers were noting that students might be fluent readers but lacked comprehension, known as hyper-lexic readers (Divinagracia, 2017), and so they were not being flagged by the I-Station assessments. Specifically, a teacher reported the following:

Um, sometimes I question on how we decide how they move. I think we're putting so much emphasis on the I-Station data. And sometimes our input at this point, isn't as strong. Um, because there has to be certain numbers on an I-Station for them to even qualify. So I have kids that I'm servicing, just like kids in RtI. They don't actually qualify because their fluency score is too high. But then yet, they have a 22% comprehension score, or 5% comprehension score. But if their fluency score was above, what was it 20? Then, we're [the team/campus] not worried about them. I [the teacher] am, but they [campus/team/district] might not be. –North High SES, 4th Grade, 22 Years Experience-

This quote illustrates the teacher's frustration/concern with how students move through RtI and her concerns with the use of a single data source. Whereas, other teachers felt frustrated because they felt that I-Station being used as the only data point inaccurately represented their students as students can just click through and randomly answer, or students might perform poorly that day, or students could get lucky with guessing. One teacher reported:

Um, the I-Station, not so much because it is a computer program and there can be glitches, and I've had some students get bored and take their headphones off [meaning they can't even hear the program/questions], and <<laughs>>, and keep going. I've had other students that will just 'click, click, click, click,' because, because they're bored, and they get a low score and then I go back and look to see why they scored so low and it took 0.7 seconds to answer the question because they were just clicking away. –North High SES, Kindergarten Teacher, 14 Years Experience-

Another teacher noted very similar concerns with the use of I-Station. Like the previous teacher, she feels that some students do not truly demonstrate their skills, but simply click through the assessment. She stated:

The I-Station don't really go into comprehension, um, and for I-Station, that's what the district kind of wants us to do for our screener, and they don't, I mean it's a computer ... The kid doesn't ever have to read. They're just clicking buttons, so I think that's a hard screener to do because the kid doesn't have to read out loud, so...So that would be like our I-Station. No. <<laughs>> I don't, so...I think that's fine 'cause they're just ... we're screened three times a year, and then periodically if they are on that, below the 20th percentile. But I just think there should be more to it than just the 20th percentile. –North Low SES, 2nd Grade, 7 Years

Experience-

Still another teacher added to these concerns by noting that I-Station may not even screen solely for reading fluency, but might also measure other concerns which muddies the results:

Unless you are doing one-on-one I-Station assessments with headphones off and you are watching them not playing on it, I don't think you are getting a very, necessarily a good accurate information, because your ADHD kids sit there and just go like this [mimes clicking rapidly], and they are screwing up the whole thing because they have no clue what it is. Ah, when you're holding them to task, they can do a lot more than what they can do independently. At this point it's just a video game... –North Low SES, Kindergarten Teacher, 27 Years Experience-

These teachers' descriptions of how students approach testing points to a need for additional data sources to more accurately identify students for RtI. By relying on a single data point, some students who do not need to be in RtI qualify while others who would benefit from the interventions are excluded on the basis of a single test score. Other teachers were concerned less with the flaws in the actual program of I-Station, but more with the fact that the district was looking at the student through only one lens:

They're doing it on phonemic awareness on I-Station for phonemic awareness.

<<pause>> Hmm...<<nervous laugh>> Well...I. I'm going to have to say no, because they're only looking at one component, right now, for how to identify a child for right now. And I just don't think that's enough.-North High SES, 1st

Grade, 14 Years Experience-

Still another teacher from the South High SES campus who had eight years of experience gave more of an impression of despair with her succinct answer of, "Right now, it's all dependent on I-Station data, so not much else I can do." A teacher from a different campus described it this way:

Right now, it's I-station. We've just kind of lost our way I think in looking at the whole child's reading behaviors. <<long pause>> I mean our interventionist even laughed at one of our meetings because someone scored a low percentile and said well he's not really-he doesn't really need intervention. I-Station is really a ADHD screener too, he just wasn't paying attention. So one kid just kinda got dismissed because of that. <<long pause>> Our school's not buying into I-station, but yet, they're not doing the things they used to do to support us, so it just doesn't feel like we're getting anything really.... No I don't think it's

appropriate. I mean I think it's a piece of the puzzle, I don't think it should be everything. –North Low SES, 1st Grade, 17 Years Experience

In fact, teachers were under the impression that that was all there was to the RtI process for reading as evidenced by the North Low SES teacher's statement, "Well, right now, all they tell us is that below 20th percentile in phonemic awareness is an indicator of RtI Tier 2," or the comment by a first grade teacher with 10 years experience from the South High SES campus, "We only really do...we do I-Station for them, and that's the main thing that they look at in order for us to see what tier students will fall under." Another teacher reported the following:

But now it has gone from looking at all the different components of that child of what you were concerned about to targeting one specific skill. I would like for there to be, I would like for them to look at the whole child. I would like for them to look at other pieces, not necessarily just have to graph weekly the pieces and, I don't wanna just meet this child for 90 minutes working on fluency, even though they are low in fluency. There are other pieces that are gonna help the fluency. There are pieces like comprehension, uh, phonics, uh, blends, digraph, word families, things like that that I want to be working on but because it is RtI process, I'm only working on fluency for 90 minutes with this kid when they're never getting the other pieces that they need. –South High SES, 2nd Grade, 11 Years Experience-

While almost all of the teachers cited concerns with data, four teachers stated that they use a variety of data to make decisions on their students. Two of these teachers were from the South Low SES campus and were very knowledgeable on the RtI process and

attributed it to the folders that their RtI specialist provided them with to track their student progress. The other two teachers had previously noted their discontent with using I-Station as the only data point for decision making and commented on how they personally choose to gather additional data to supplement the I-Station data, but that they do this on their own. These other data sources are not necessarily considered when making placement decisions for RtI; it is dependent upon the campus. The first two teachers cited the use of writing samples, reading levels, last year's data, informal observations, DRA's, running records, benchmarks, etc. in addition to the I-Station data stating:

Um, I guess just data that we have from assessments and like informal observations. Uh, we use like DRA, running records, set points, um, benchmarks. I feel like on our campus, they've done a really good job this year of taking everything into account, not just using one assessment to say, "Yes, that kid needs more intervention or no, he's doing fine." You know, they look at the big picture, I feel like. So, I think that they're doing a pretty good job this year with, um, with that. –Fourth grade teacher with 13 years experience, South Low SES Campus-

The last teacher noted that she added leveled books, accelerated readers, and independent reading books in with the I-Station lessons to supplement student needs. However, the majority of the teachers perceived that the only data used to qualify students for RtI was I-Station fluency assessments. Many teachers expressed concerns over this and wished the "whole child" could be considered.

When teachers lack knowledge of the general process, how to use the programs the district has in place for them, and what is expected of them as far as their role within

the process, it leads to inefficiency and unforeseen needs. This leads to the next two overarching themes that arose from the interviews: *Need for Resources and Time*.

Need for Resources

When teachers were asked what areas of RtI they struggled with, they consistently reported that they needed support in two ways: training and/or more staff to help with small group intervention. In addition, this study specifically looked at the district's resource of I-station as a RtI tool, and therefore, it was commented upon frequently by teachers as a resource, whether effective or not in response to interview protocol questions 7-8 and 10-11.

More training. When teachers were asked if they had been trained on RtI (as mentioned above), only one could state that she had. This was because she had gone to a district training on a different program and it ended up being for RtI; she did not want to waste the half-day she had taken off, so she stayed for the RtI training. Regardless of years of experience, campus that they taught at, or grade level that they taught, teachers reported that they would like more training on RtI so they could be more knowledgeable to better implement it. The frequency of coded responses for concerns regarding wanting more training is presented in the table below:

Table 4.8

Frequency of Coded Interview Responses for Needing More Training (n)

	Frequency (n)
Campus	
North High SES	9
North Low SES	7
South High SES	7
South Low SES	7
Grade	
Kindergarten	6
First Grade	5
Second Grade	5
Third Grade	10
Fourth Grade	4
Years of Experience	
0-5 Years	3
6-10 Years	10
11-15 Years	13
16-20 Years	2
21-25 Years	1
26-30 Years	1

Specifically, of the 14 teachers who had felt like they had been trained (as noted in their interviews), eight reported that they did not feel the training was sufficient and that they could use more, or reported that they had not been trained specifically on RtI or I-Station at all. Trainings were reported to be provided by campus specialists in charge of departments/grade levels, RtI Specialists on the campus level, campus principals, and also district level coordinators, including specialists brought in by the district (though no one could remember who they were or what they talked about). A 3rd grade teacher with 17 years of experience from the North High SES campus described the trainings she participated in:

We have ... On staff development days, we have training, um, with ... We meet with the coordinator, we meet with our administration, and we look at the different computer programs that the kids are being on. We've kind of, pretty much, just look and see what the kids are doing as they pull them.

A 3rd grade teacher with eight years of experience from the South High SES campus reported: “Year to year, it varies. Some years, they'll hand us something and other years, they'll be like, ‘Oh, you got this here. Give this assessment every week [and that is the extent of our training.]” One Kindergarten teacher from the South Low SES with 10 years of experience reported, “I don’t feel that they’re [district staff] involved enough, especially when procedures change, which they did at least....Last year they came out that they’d changed. Last year.” Another 4th grade teacher with 15 years experience from the South High SES reported a similar wish:

I think if they were...In general, they [trainings] are fine. I want to learn what to do. I just think they are not sometimes specific enough. They [trainings] are very broad where [I want them to] sit down and tell me, what do I need to do...

Still another teacher felt like she had been trained but still needed more stating:

Mmm, I, I wouldn’t say...I wouldn’t say that the training...We know what I-Station’s supposed to do. I feel like because we’re dependent on a computer program, I’m not, I’m not sure whether it’s good or not good. I couldn’t tell you.

You know what I mean? So-I absolutely feel like I could use more training.-North High SES, 2nd Grade Teacher, 8 Years Experience-

Another teacher felt like her campus was doing a good job with RtI but again, noted she need more training:

Um, I do feel like at this campus we've been doing it for a few years and it's pretty mapped out. And um, I think the hardest thing is that I would love to know, 'Okay, so where do I go next,?' without having to go ask somebody.-North Low SES Campus, 3rd Grade Teacher, 11 Years Experience-

These quotes all demonstrate the lack of relevant training teachers have received on RtI, its processes, and how to implement and adapt within its framework. Two teachers admitted that they did not know where to start with resources or what to do because they had not had any training, and so they used their personal favorite resources:

Pinterest? <<Laughs>>. You use it-Well, I mean, I just-I'm answering honestly. I will type in, you know, RtI Kindergarten, and there's, you know, <<laughs>> ...Some of them. [And they're good or bad resources] It depends on who pinned it, <<laughs>>. -North High SES, Kindergarten Teacher, 14 Years Experience-

The second teacher from the North High SES campus in 3rd grade with 17 years of experience opted for a different source: "*Oh, well, Internet. Google's my best friend. <<laughs>>.*" Others still cited concerns with needing training because besides not knowing how to use the I-Station program required by the district, they were being asked to gather other types of data and they were not sure how to do so. It is worth noting that this teacher worked at the campus that did not rely solely on I-Station data and asked its teachers to gather a variety of data sources to help make student RtI decisions. This teacher desired to help their student, but was unable to because of a lack of know-how:

Well I haven't had any I-station training. My campus generally doesn't like it, so they're trying to alleviate teachers from having to worry about it, so we don't know about it. But yet it's supposed to be so important to the district, so...um.

Other than that, training...No. [In addition] I think our LSSP wants a lot of measureable data from week to week...and we're not trained on how to keep that data from week to week. And I think that should be the interventionist's and ALT's responsibility to help us know if we're putting the time into working with these kids extra, how-what is the specific way you want us to measure that. –
North Low SES, 1st Grade, 17 Years Experience-

As has been previously mentioned, teachers are not sure who is responsible for data collection and would like additional training on how to collect data, what specific data to collect, and what types of data are appropriate for a variety of situations. In addition, as noted in the above quote, they also want to be trained specifically on how to take data that will be useful to their LSSP or ALTs for not only the RtI process, but also referrals to special education and other programs such as 504. One 3rd grade teacher with 11 years of experience from the North Low SES campus even expressed frustration with those providing the trainings citing that even those who train them do not have a clue as to what the process is, and therefore it is not helpful reporting:

Um, I mean, I feel like I know what to do, it's just ... it's always like this is what they told us and it's just being passed down and they're not 100% sure what we're supposed to do, because district is not 100% sure what is going to happen.

That is not to say that the trainings do not exist. As mentioned above, the district's intent was to have available coaching and trainings for teachers to improve their use of I-Station and RtI so that the program would become more efficient and effective within the district. However, as seen in the quotes, teachers were not aware of the trainings, or campuses elected to send a specific staff member who did not have anything to do with

RtI, such as the educational diagnostician. The teacher who happened into the wrong training and ended up in the RtI training reported:

It end (sic) up not even being that, it ended up being about RtI and that the new test that they're rolling out [I-Station], so it's not longer ... it's, at district level where they, depending on where they are this is a test that you test them to find out what level they are and where you need to start them in the RtI process. And then they taught us how to, how to read it and how to score it and how to graph it, so that's pretty much what we learned. –South Low SES, 3rd Grade Teacher, 5 Years Experience-

While she did not intend to be trained on RtI, as evidenced in her quote, she mentioned how helpful it was and that she was glad she attended. In addition, her campus' principal has an RtI specialist on staff who has been effective as their campus was the most knowledgeable about the process amongst the four campuses and the best able to articulate the process as demonstrated in the previous section on Knowledge. Teachers on this campus reported being trained and having supportive leadership, yet they still reported needing more training because they felt like they were only being guided as demonstrated in the case below with the 2nd grade teachers from the South Low SES campus with 10 and 21 years experience, respectively:

[Teacher 1] I wouldn't necessarily say trained. I will say that we were guided, if that makes sense? If we had a question in regards to a student on whether we need to do ... Or this isn't working. They would sit down and talk to us, Okay, let's try this,' or 'What do you think about that.' [Teacher 2] We, they didn't necessarily

have a training, per se, on how to ... And I think that's because there's, each student is, it's all so individual.

In fact, when it came to training, the South Low SES principal was mentioned by his/her teachers six times and was the only campus administrator cited as being supportive and providing the campus with trainings and information needed to help them feel successful with the RtI process. Only one other campus cited a supportive leader as helping them be successful with RtI, and their principal was supportive in ways aligning with the next subtheme for resources: More Staff. However, even with more staff, it is necessary that they all be trained on RtI, the tools being used with RtI, and that the trainings be quality so that staff feel confident, along with having those in charge of the programs be knowledgeable enough that they can support those they are training.

More staff. Teachers were asked if they felt they had enough resources to implement RtI and if they felt these resources were sufficient. The overall response was “no” (14 out of 22) there were not enough resources, and the second most popular response was the need for additional staff to help implement the interventions (7 out of the remaining 8). Teachers discussed the need for additional people or staff members as necessary for implementing RtI, regardless of campus, grade level taught, or years of experience.

Specifically, those teachers at the campuses considered to be of the higher socioeconomic status (SES) had additional support staff on their campuses to assist them whether they were RtI support staff, instructional coaches, or other termed staff, but they still felt that additional resources were needed in the form of staff in one way, shape, or form. In addition, the teachers with additional support staff on their campuses noted that

their principals and leadership have hired or have offered to hire staff to assist them with RtI, but that this still does not appear to be enough for the students’ needs, and/or, the staff conduct pullout groups from the classes, and teachers felt the students would benefit more from push-in services in the classroom. The frequency of coded responses for concerns regarding wanting more support staff is presented in the table below:

Table 4.9

Frequency of Coded Interview Responses for Needing More Staff (n)

	Frequency (n)
Campus	
North High SES	4
North Low SES	5
South High SES	12
South Low SES	4
Grade	
Kindergarten	4
First Grade	8
Second Grade	2
Third Grade	3
Fourth Grade	8
Years of Experience	
0-5 Years	1
6-10 Years	7
11-15 Years	11
16-20 Years	4
21-25 Years	0
26-30 Years	2

Specifically, a 1st grade teacher with 17 years experience from the North Low SES campus reported, “I believe we have the resources. I don’t believe we have the time or the staff,” and a 2nd grade teacher with seven years of experience from the North Low

SES campus offered that she, “would like just more support in, like, the classroom. Like, more people being able to come in.” A 1st grade teacher from the North High SES campus with 14 years of experience was more specific citing the concern that kids who need the extra help are pulled out and thus miss instruction, putting them further behind, but also noted the dilemma of keeping them in the class:

I can't give another one child another 30 minutes of my time during the day...so it's going to have to be before or after school. So it would be nice to have another teacher to be able to either come into the room and provide that time because I don't necessarily want to take the child out of the room. –North High SES Teacher, 14 years experience-

With other teachers, their frustration was apparent with how hard they were trying to meet the district's expectations, implement the district's RtI model, and how desperate they were to help ensure student success as described by this teacher:

A lot of times they [district support staff] want to come in and watch what I'm doing, and that's fine but like I already have told you what I'm doing, I've already showed you. I don't need you to come necessarily to critique what I'm doing, come and help me to enhance it. [she followed up by saying later] Well a lot of it just falls to the teacher. Like, I've asked for help, I've asked them to come in to work with kids and they don't. They say they don't have time, or they are too busy. And I'm sure they are, but that's their job. That's what they are getting paid to do. –South High SES, 4th Grade Teacher, 15 Years Experience-

Another teacher mirrored this sentiment noting that the teachers are trying their best in the classroom to help *all* students and they feel like they are not being supported because

when the students who are struggling continue to fail, they [the teacher] are reprimanded, but they are also responsible for all of the other students in the classroom who are being successful. This teacher noted:

If you're going to say these kids are not being successful in the classroom, then do something. Don't say, 'Okay, you're [the] classroom teacher. You need to spend ninety extra minutes with this one kid, but also, your other kids, so they don't end up on RtI' -I think it needs to be done by a non-classroom teacher. I think there needs to be someone who is trained [a different staff member]... more like the way that we do dyslexia. Like, there has to be somebody that's trained in it that pulls out and does it so it can be done with fidelity. –South High SES, 3rd Grade Teacher, 8 Years Experience-

Despite the discrepancy in wants, whether the teacher wants staff to push-into their classrooms, or the teacher wants more staff to help with pullouts, they all reported wanting more staff to help. Finally, a Kindergarten teacher at the South Low SES campus noted that it is not even just about getting additional staff to support them, but getting one early enough to make a difference by stating, “Um, getting administration to give us [an] interventionist at an early time [meaning before the student falls too far behind].”

While every campus noted that they needed more support, some teachers commented about their administration's efforts to give them this type of support. A 4th grade teacher from the North High SES campus denoted that her administrator had tried to look at scheduling and providing interventionists to them so that teachers could pull their students on certain tiers and work with them in small groups. The teacher noted that

this focused instructional time is beneficial while someone else watches their class stating:

And even our principles have looked at even just scheduling, you know, like, having certain staff go in to be able to even cover us, so that we can work with the small groups. As well as the interventionists, if they're on the certain tier's, pooling them as well. But some of the kids, if they're only on a Tier 1, that's nice to have the, the quiet time with them, with someone else watching the rest of the class. -4th grade teacher, North High SES, 22 years experience-

A 2nd grade teacher from the North Low SES campus reported that her principal got creative in her attempts to support the campus and would pull front office staff to cover classrooms so the teachers could visit other classrooms to observe how interventions worked or to have time to pull small groups and whatever else was needed. This helped but was not enough. A kindergarten teacher on this same campus noted that her principal also attempted to alleviate stress from the teacher with “support staff” by taking on responsibilities herself noting that:

Um, our principal is very, ah, supportive. I mean, you know, we really have to be meeting with these kids. It's not an option. Um, she's willing to talk to parents who might feel like, oh, their kid doesn't need it or I'm too busy to be able to allow you to do this [meaning she will meet with them in place of the teachers because they do not have the time]. So she's very supportive of that. –North Low SES Campus, Kindergarten Teacher, 27 Years Experience-

Ultimately, while teachers still felt they needed more staff to support them and more training, it did appear that campus administration was hearing them and attempting to

meet their needs in their own unique ways, but that there is still room to grow. This was best stated by a 3rd grade teacher with 17 years experience at the North High SES as, “<<laughs>> Yes, we need, like, six more aides in the classroom, please! That would be awesome <<laughs>>!”

Time

Finally, the last and most frequently cited theme from all of the interviews was a universal frustration with the need for more time to be able to implement everything that is required with RtI from the interventions to the data collection, and everything in between. This theme also revolved around the amount of time required to document the interventions, and given all this time the fact that teachers felt like RtI did not work and therefore, wasted their time. When teachers were asked what they felt they needed to be successful with RtI, 17 out of 22 of the teachers reported they needed more time (Information for this theme was drawn from interview protocol questions 7-9 and 12).

Need for time. This theme was fairly straightforward as described by all participants: they do not believe there is enough time to work with each student for the amount of time the student needs to be successful, or they do not view being able to provide the prescribed interventions to each child in need as being a realistic endeavor. The frequency of coded responses for concerns regarding the need for more time is presented in the table below:

Table 4.10

Frequency of Coded Interview Responses for Needing for More Time (n)

	Frequency (n)
Campus	
North High SES	10
North Low SES	13
South High SES	27
South Low SES	4
Grade	
Kindergarten	18
First Grade	10
Second Grade	8
Third Grade	10
Fourth Grade	8
Years of Experience	
0-5 Years	0
6-10 Years	21
11-15 Years	11
16-20 Years	3
21-25 Years	3
26-30 Years	16

Teachers specifically stated the need for time to manage lesson plans and overall instruction differentiation for their students, time to implement the actual interventions of RtI, and time to problem solve supports for students who are not learning but may not be progressing in their RtI plans either. This theme was apparent regardless of the campus, years of experience, or grade level being taught and regardless of the support available on their campus (as seen in Table 4.10) with a Kindergarten teacher from the North High SES campus noting:

Just the amount of time. You know, where-where am I going to fit it in? Where am I going to get that extra ten minutes to work with that student? And-and not

only where am I going to get that extra time, but how am I going to do it so that they're not called out [not stigmatized for the extra help]?

In fact, the teachers' frustration was palpable in some of their responses, with a Kindergarten teacher with 27 years of experience from the South High SES campus denoting:

Sometimes I don't feel like it's, it's feasible for, um, a teacher to implement RtI strategies, fill out RtI paperwork, and all that with all ... I mean, even in kindergarten, our curriculum, our day is packed. It's a good thing they took out naps and chocolate milk, and animal cookies because we don't have time.

[underline denotes emphasis]

It is also important to note that teachers never mentioned being upset at the burden, but rather, they were upset with their inability to assist and support the students in the way that they felt was necessary. One first grade teacher shared:

I know it's not necessarily a resource, but I do think that more time for these kiddos, spent on whatever, you know, skill they're needing to progress more on or get better at [um]. Nowadays, our groups are so heterogeneous that it's hard sometimes to provide for both, right, your advanced readers and your low readers. So...time would be great if it could be applied as a resource. -South High SES Teacher, 8 years experience-

Time was consistently an issue whether it was provided by the classroom teacher for general education and RtI students, or even the RtI support person as noted below by a 1st grade teacher with 14 years of experience:

[talking about support staff] ...if there is extra time she will help pull the RtI kids. IS there extra time? No. So it's almost that we still need that more support. But me personally, with so many children, it's hard to make sure that my RtI guys [get the help/intervention], which they are though, I'm making it work, but it's very difficult. –1st grade teacher, North High SES Teacher, 14 years experience-

Again, regardless of additional staff or not, time was a consistent concern reported by teachers. I-station is a resource that is supposed to help alleviate this burden by addressing multiple students in an efficient manner according to Patarapichayatham (2014) and Patarapichayatham and Roden (2014), but it does not appear to be freeing up the teachers' time in this district. This is likely due to the fact that the teachers are working for the RtI system but not understanding it instead of making the system work for them. As a 1st grade teacher with six years of experience from the South High SES campus shared, "You know that those students need extra time and I struggle with how to figure out ... you know, instructing the rest of the class, but also meeting the needs one on one." This ends up making the teachers frustrated, having them give up, or having them not provide the interventions at all. Several teachers reported being frustrated which can be seen in the following series of quotes, starting with one from a 3rd grade teacher with 8 years of experience:

I think they [the district and campus in training] did the best they could do.

Nobody really wants to spend a lot of time on RtI. I think kind of the general feeling is that it doesn't really work 'cause we see those kids that get bounced back and forth. So, if all we're gonna do is bounce a kid between two and three for the rest of their lives, then, nobody really wants to spend a lot of time on working on

it... [The teacher went on later to say..]It's difficult to have time to do it, it's not done with fidelity from classroom to classroom. There is no end. There is no exit. You're either at the top and there is no next stop, you just stay Tier 3 until you go to middle school, or you're never in it, although at the beginning of every year, they say, 'Well, everyone is Tier 1.' –South High SES, 3rd Grade Teacher, 8 Years Experience-

Another 4th grade teacher with 15 years of experience from the South High SES campus feeling a similar frustration stated, “No one is gonna sit here and tell you, ‘Yeah, yeah, I want more training,’ because we don't have time for that. Not really, but I'm not gonna ask for more because I don't have time to do that.” A 4th grade teacher with 13 years of experience from the South Low SES campus echoed this thought noting, “Um, that it's [RtI] time-consuming. That's the frustrating part of it. Um, it's more difficult on top of our already busy day.” Thus, based on the evidence shared by the participants, the lack of time to work with students contributes greatly to teachers’ frustrations. This ultimately affects the way they implement RtI in their classrooms.

Waste of time. In addition to the lack of time, discussed previously, teachers noted their frustration with the amount of time they spend providing intervention and documenting the intervention for students only to have them remain within a tier or intervention cycle and in their opinion, never progress or have a positive outcome. The frequency of coded responses for concerns regarding feeling like it wastes their time is presented in the table below:

Table 4.11

Frequency of Coded Interview Responses for Feeling Like it's Wasted Time (n)

	Frequency (n)
Campus	
North High SES	2
North Low SES	9
South High SES	13
South Low SES	5
Grade	
Kindergarten	4
First Grade	4
Second Grade	5
Third Grade	14
Fourth Grade	2
Years of Experience	
0-5 Years	4
6-10 Years	8
11-15 Years	11
16-20 Years	3
21-25 Years	0
26-30 Years	3

Teachers reported that the constant documentation required in RtI made them feel like they were wasting their time doing RtI. This was in part due to the fact that they felt children never received help and were just always kept in RtI moving between tiers or they just moved on to the next grade level and were bumped back down to the first tier again. Specifically a 2nd grade teacher with 7 years of experience from the North Low SES campus represented the popular opinion when she reported:

We, um ... I mean I, I have seen it where they've, you know, they've met benchmark [and were dismissed]. It's also very frustrating when you've got kids who aren't gonna make it. You know, and even after three quarters of the year teaching them [and them not meeting goals], um, and then it's kind of like nobody

goes any further with it, it's RtI again next year, there is no testing for special ed [they just keep repeating the cycle]. –North Low SES, 2nd Grade Teacher, 7 Years Experience-

Echoing this sentiment, a 3rd grade teacher cited a specific example of the aforementioned back and forth movement between tiers stating:

Um, I, for example, I have a child that had struggled since she came here in kindergarten. She's already been held back and she's failed everything and it's like we're doing RtI again. And I feel like once they come into the next grade level, it's like, 'Okay, you need to go to RtI level two' and it's like, 'Weren't they on that last year?' 'Well now you have to do this.' It's just very ... I don't know, I feel like nothing gets accomplished and it's a long time. –North Low SES, 3rd Grade Teacher, 11 Years Experience-

On the converse, teachers whose students did have positive outcomes still felt the same frustration with wasting their time because they wasted almost an entire academic year to come to the same conclusion that they were already aware at the start of the school year, such as the case described below:

Just, um, the time, um, and the amount of time that we're supposed to give for the actual intervention. And it's like, [we're told] 'Okay, try this for nine weeks. Now try this for nine weeks.' And so it's like this child has struggled since March. You have parents breathing down your back, 'What are you doing? What are you doing?' And I'm following what I'm told and then nothing happens. I feel like it either gets dropped off and then the next year you're starting all over, or, um, you're like, [the district/RtI committee tells you] 'Okay, they can get tested' and

you knew that back in October. –North Low SES Campus, 3rd Grade teacher, 11 Years Experience-

Teachers also commented that not only do they feel that RtI is wasting their time, but that it hurts their reputations as teachers and ends up wasting the time of the next grade level's teacher and makes them think negatively of what was accomplished from the sending teacher (see the quote below from the 2nd grade teacher with 11 years of experience). Most importantly though, every single teacher had the student as their focus and felt that it greatly disserved the children to wait so long to provide them help when it was apparent to the teacher they needed it. These concerns are reminiscent of Lewin's Change Theory (1951), the working theoretical framework, in that the teachers are willing and wanting to change and do what is asked. However, the forces for change are not overpowering their belief in the way things have been done enough to motivate them to do things in alignment with the new method (RtI). This problem makes change less likely to be effective. A teacher specifically noted:

I think it's really ridiculous that we wait nine weeks to monitor a kid. I think it's too long. And I feel like by the time I'm finished monitoring the school year's over, the kid's way farther behind. He moves on to a different, here she moves on to a different grade and then they're told to start the process all over again. So the, the child is just trapped in this terrible cycle that never gets help. And they continue to further be- [fall further behind]-and we never help them. And then we wonder, and then the upper grades think well, wh-, how did this kid get in my classroom? They can't read. They can't, they can't add; they can't subtract; they

can't multiply or divide. This [RtI] is why.” –South High SES, 2nd Grade Teacher,
11 Years Experience-

Another teacher focused more on supporting her concerns with data and cited a specific example:

I want them [RtI team] to speed up the process. When you know a child is so, so low. We don't need to spend six to nine weeks. If they are ten and they still can't count with automaticity, if they don't know what number comes next after 98 and even when we get to a hundred and they look at you and then we have to like, I have to tell them it's 101 and we're writing numbers, you know they are behind. You know there is some type of gap. Let's test them and see what they need. –
South High SES, 4th Grade Teacher, 15 Years Experience-

Finally, one 1st grade teacher with 6 years of experience summed up all of the themes in her quote noting that not only is it a problem that only one data source is used (I-Station) because it can ignore important factors such as a student having good fluency but lacking the other necessary skills to be successful, but that it also takes too long to re-test or screen for decision point meetings.

[Ummm] I struggle with the timing. Aiight, so [um] here for example we do a universal screener at the beginning of the year but then the next universal screener doesn't happen until January. So in the in between that time, if you notice that there is a student who continues to struggle in the classroom lets say for example in reading, not progressing you know as you expect that student. Well you can't really do anything in the process until they take that screener again. And if they don't populate on that screener then ... that, there's no interventions that are put in

place. So I feel like I'm trying to push for something that I already know it's not going to happen because you only know your kids are going to get better at scoring on I-Station. So they didn't populate on the first screener, they're probably not going to populate on the next. So the timing, I feel like I'm wasting time. – South High SES Campus, 1st Grade Teacher, 6 Years Experience-

This also leads to the concern that if the time is not available to give them (the students) the intervention they truly need, then ultimately the teacher just feels they are wasting their time. The concerns noted by this teacher succinctly summarized the issue with RtI, the teacher's frustrations, and a starting point for where to start in fixing the problem.

Summary of Findings

Results of the data analysis found that students did make statistically significant progress on their reading fluency scores between their pre-test and post-test measures across the 2016-2017 academic school year. However, when analyzing teachers' self-efficacy with RtI across the semester, no statistically significant gains were found, which makes sense in reflection of research question three when multiple respondents disclosed that they had not attended or been a part of district professional development and coaching regarding the RtI process or I-Station program. It is then, quite intriguing that despite the teachers not being trained on the I-station program, as reported in question three, and despite them not feeling necessarily confident with RtI nor understanding how to implement or adjust RtI, as reported in questions two and three, that students still made gains in their reading fluency ability.

Conclusion

This chapter presented the results of the quantitative and qualitative data analyses of this study. Overall, students across the district made gains in the reading fluency scores despite no significant increase in their teachers' self-efficacy with implementing or utilizing the RtI process. All sub score areas remained the same except for teacher self-efficacy in making decisions about academic instruction for individual students, which decreased across the academic year. When it came to the reading fluency scores all campuses made gains, despite not all campuses implementing the I-station program with fidelity, as respondents noted in their interviews. Continued frustration with RtI was noted despite improved outcomes from the I-station/RtI program because coaching and professional development support with the RtI program was not utilized or obtained by those staff who were most frequently being expected to implement and utilize I-station as an intervention and program. The themes discussed were consistent across all settings, grade levels, and teachers regardless of years of experience, campus located at, or demographic make-up of the sample indicating the strength and validity of the theme noted.

In the next chapter, this study's findings will be compared and contrasted with prior studies documented in the research literature. Additionally, the implications of this study's results will be discussed with considerations toward improving RtI implementation, education, and training for school districts to ensure compliance with the federal mandates of IDEA and NCLB while also ensuring success for those students who are struggling in reading (IDEA, 2004)(U.S. Department of Education, 2013). Further avenues for research will then be identified.

CHAPTER V

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

The purpose of this mixed methods study was to determine if implementing Tier 1 RtI at the elementary school level would influence student-reading achievement. The study was framed by the idea that change requires forces in favor of the new program (RtI) to be strong enough to overcome or overtake the forces that oppose change and are in favor of what historically has been (Lewin, 1951). In the context of the present study, it would appear that the forces for change did not overcome the opposition despite the fact that research on the effectiveness of RtI has been extensive.

Research on the effectiveness of RtI has been extensive, but it continues to not be implemented with fidelity in school districts (Al Otaiba et al., 2014; Chambers et al., 2011; Fuchs, Fuchs, & Compton, 2012; Gilbert et al., 2013) due to teacher lack of understanding and frustration. Literature and research looking at the obstacles impeding the implementation of the best practices of using technology-rich RtI appeared to still need further exploration. Research has not explored the training components and implementation concerns when teachers are expected to implement the technology. In addition, studies have looked at teachers' perceptions of RtI when they are included in the decision-making processes associated with RtI and its implementation (Alviar-Martin & Ho, 2011; Castro-Villarreal, Rodriguez, & Moore, 2014; Isbell, & Szabo, 2015; Millhouse-Pettis, 2011; Stuart, Rinaldi, & Higgins-Averill, 2011) but have failed to extensively explore teachers' perceptions of the effectiveness of RtI when they are not

trained on what RtI is or the theory behind it, much less how to implement it or make decisions revolving around it.

To evaluate the effectiveness of a technology-rich RtI program on students' reading fluency, the I-Station reading curriculum and assessment was used by a large suburban school district in southeast Texas to assess a total of 1,339 students in grade Kindergarten through 4th on reading fluency. Additionally, all teachers on four selected campuses who taught Kindergarten through 4th grade were administered the *Multi-Tiered Instruction Self-Efficacy Scale* (MTISES) twice - in September 2016 and May 2017 prior to and after a year's worth of professional development and coaching on the use of the I-Station RtI programs to evaluate their self-efficacy with using RtI strategies to supplement their students' classroom instruction. Finally, 22 teachers (minimally one from each grade level on each campus) volunteered and participated in semi-structured interviews regarding their perceptions of RtI; this qualitative data enriched the understanding of the district's RtI procedures, RtI trainings, and teachers' knowledge and understanding of RtI in general. This chapter summarizes the findings of this study and contextualizes the larger body of research literature. Implications for districts and teachers as well as recommendations for future research are also included.

Summary

Computer-based tutoring and reading programs have been found to be more effective and efficient at reaching a larger number of students than traditional tutoring and RtI programs (Chambers et al., 2011; Patarapichayatham & Roden, 2014; Patarapichayatham, 2014). In addition, I-Station was found to be effective at improving students' reading abilities whether they were considered at-risk or not

(Patarapichayatham & Roden 2014; Patarapichayatham 2014; Bugbee, 2011). This matched the data found in the current study where results of the data analysis found that students did make statistically significant progress on their reading fluency scores between their pre-test and post-test measures regardless of their teacher's knowledge or competence in using the I-Station program. This could be indicative of the quality of the I-Station program or the inherent effect of caring teachers on their students.

Research shows that RtI is effective when students receive intervention as soon as they are identified as struggling and that this can lead to longer-term effects and larger gains in their reading abilities (Al Otaiba et al., 2014; Gilbert et al., 2013). However, in interviews, respondents disclosed that despite their having identified students as struggling, the district did not allow them to intervene due to a policy on cut-off scores based on I-Station phonemic awareness scores; therefore the research could not be confirmed or disputed. This is either due to the teachers not understanding the process or the district having too rigid of an RtI process.

Finally, when surveyed in literature, teachers identified several perceived barriers to RtI such as lack of support from their leaders, lack of adequate training, lack of time to conduct RtI, lack of resources including staff, and an overall confusing process. However, when teachers were involved with the process of development and implementation of RtI, they reported an increased sense of effectiveness, self-efficacy, and sense of being a stakeholder, making this area a key focus of future studies regarding RtI (Castro-Villarreal et al., 2014; Stuart et al., 2011).

This same feedback was found in the present study when analyzing teachers' self-efficacy with RtI across the year. No statistically significant gains were found on the

MTISES, which also makes sense in reflection of Research Question Three when multiple respondents disclosed that the district's professional development and coaching was not extended to them as the teachers but rather other personnel on their campus or their RtI support team who do not work directly with the students necessarily, or that they were not aware that the district was offering training for I-Station or RtI. Therefore, the second part of the research and literature involving increased self-efficacy could not be addressed in this study because teachers were not sent to trainings and coaching sessions/did not attend them to have the ability to improve their self-efficacy. However, the teachers identified almost the exact same barriers to implementing RtI as previously identified in the research. While the literature closely aligns with the findings that were obtained in this study, further study needs to occur to determine if outcomes would match those of the research and literature base in existence should teachers attend the trainings and coaching offered through the district as their model intends.

Implications

As a result of this study's exploration of the effectiveness of technology-rich RtI on students' reading fluency, coaching and professional development on teachers' self-efficacy, and teachers' perceptions of the RtI process, implications for districts and teachers emerged. Discrepancies between previous research and the findings of this study are where the implications for districts and teachers are found.

Research has shown that use of technology-rich RtI is more effective than traditional RtI, however this was not seen in this study because the district did not train its staff to use the technology (Chambers et al., 2011; Larabee, Burns & McComas, 2014). Specifically with the I-Station program, research has shown it to be highly

effective the more it is used with students for their reading intervention, and yet if teachers are not taught to use it, they will not (Bugbee, 2011; Patarapichayatham, 2014; Patarapichayatham & Roden, 2014). Therefore, if districts are going to mandate a specific program for their RtI programs within the district, then they should ensure that all teachers, including support staff that implement RtI, are trained in the use of the program to the extent that they can effectively and efficiently navigate the program and implement it.

Research has also shown that using technology with RtI allows teachers to access more students in the same amount of time than traditional methods, and that technology-rich RtI is more effective (Chambers et al., 2011). The same reasons come into play that may be affecting this district and inhibiting I-Station's ability to save teachers time: lack of knowledge and lack of training. If the teachers are trained to use I-Station to implement interventions and strategies for reading, they can more efficiently target a larger number of students simultaneously, thus saving time and resources (staff, time, and materials) while having a positive effect on student learning.

Finally, almost all of the issues with the reported concerns under the theme of *Knowledge* can be resolved with a solid foundation of training, instruction, and resources for the programs that teachers are expected to implement, until this point, this study cannot truly address what the literature states. Educating district personnel, teachers, and RtI support staff on the basics of RtI will improve teacher self-efficacy in all areas, which based on research will improve student reading scores (Isbell & Szabo, 2015), and therefore improve district academic outcomes overall (Chambers et al., 2011).

Despite the fact that teachers did not attend coaching or professional development on the I-Station program, results of the data analysis showed that all campuses made gains despite not all campuses implementing the I-Station program with fidelity as respondents noted in their interviews. This data is promising for both the teachers and district. This should encourage both that participation in the I-Station curriculum and assessments can improve their students' reading ability, and that research shows the more students use it, the more their scores improve (Patarapichayatham, 2014; Patarapichayatham & Roden, 2014). Therefore, investing in training on the use of the program for all teachers and support staff can only improve student outcomes. More so, allowing teachers to use their judgment in putting any student they deem as struggling on the program to help increase their reading ability despite a predetermined cut-off score can only help support student success.

In addition, teachers are ultimately the experts of their classrooms, the curriculum, and the students they work with. Educating staff, campuses, and districts on the dynamic RtI process will allow the teachers to feel validated as experts and alleviate the problem of using only one data source (I-Station) to make decisions. Teachers are correct that fluency is not the only piece of a puzzle when it comes to student reading or learning, but rather multiple sources of data should be used to determine student learning and progress. If the teacher who works with a student day in and day out feels that a student is struggling and needs intervention, the teacher should have the ability to place the student into RtI and even expedite their progress (dynamic RtI) to Tier 2. If RtI is being implemented appropriately, the student will benefit from the interventions and move back to the general education curriculum, or the student will progress through the tiers as

intended by the process and receive the help he or she needs sooner rather than later, which removes the reported issues of teachers feeling like they are not heard and that they are wasting time and therefore not buying into the process.

Ultimately, as seen in the previous literature review and in the results of this study, if the teachers are not trained appropriately in both the theory and structure of RtI, along with the implementation of the RtI tools that are mandated for use, they will be frustrated. This frustration with the process will lead to forces against change being overwhelming as their attitudes, beliefs, and perceptions will align with their frustrations and ultimately the teachers will come to the conclusion that RtI does not work (which is exactly what happened in the results of Research Question 3). This will stop the change process in its tracks, and as seen in Lewin's change theory, people will remain frozen in their previous ways, preventing any systematic change from occurring all because of a lack of quality training.

Recommendations for Future Research

Implementing RtI incorrectly leads to inaccurate results, thus reaffirming teacher beliefs that RtI does not work, and continuing a cycle of non-compliance with the federal mandate or complying with the mandate without fidelity. Ensuring that all teachers or staff who are expected to participate in implementation of any type or level with RtI are trained not only on the basics of RtI (what it is, how it works, etc.) but also on any of the tools required to be used with RtI is the first step school districts should take when reviewing their RtI programs.

The district in this study already has a series of professional development and coaching in place for district personnel to learn their RtI procedures and how to use I-

Station. However, when examining the findings of this study it became apparent that only certain staff was sent, or the trainings were not mandatory, and the staff that was sent were not the ones implementing RtI. Correcting this flaw would solve most of the concerns noted in this study.

There is no way to confirm or refute the literature reviewed previously, because the staff in the study were being asked to carry out interventions or programs they had no knowledge of, and therefore were not really using or at the minimum did not feel confident using. As was the original reason for doing this study, a lack of knowledge and support (whether real or perceived) is leading to a failure to effectively implement RtI, which leads to teachers not believing RtI works. Correcting this flaw in teacher knowledge of the process, of district expectations for the process, and of how to adapt RtI for each student in future studies would be paramount.

Removing an arbitrary cut off for who qualifies for RtI, and empowering teachers to determine which students are at risk and allowing them to place these students on RtI given that they have data to support their decisions, will create a less streamlined process, but be more in line with the heart of RtI. In addition, this would ensure that students are addressed as soon as teachers identify the need for intervention supporting both the student's need for assistance and addressing the teacher's sense of self-efficacy. Having this process (true dynamic RtI) in place would be something to research in future studies.

Stemming from this, those teachers who could talk competently about the RtI process, how it worked, and were able to discuss ways to adjust the interventions to meet the needs of individual students never cited I-Station. Those teachers who cited I-Station, only cited I-Station and did not appear to understand the process or model of RtI in

general, but rather were only able to regurgitate a rule or guideline laid out for them by the district. For example, “Um, It’s basically right now, uh, showing a list of kid’s data and the percentile they scored on I-Station phonemic awareness and if they’re below the 20th percentile then they will receive Tier 2 RtI.” Whereas those teachers who were more informed about the processes involved with RtI and how the model is intended to work cited a variety of sources and types of data to draw from. Future research should evaluate student progress by delineating between each type of teacher and which classroom of students makes more progress.

Table 4.4 showed that teachers almost always responded that they are already using the practice as required by their district, but that they would like additional training on how to improve in using it. An alternative explanation is that teachers did not want to take the time to interpret the question, recall facts or information needed to answer it, and then interpret that information to form an opinion which would then need to be translated into a response and therefore chose the median answer to simplify the time needed to complete the survey (Johns, 2005; Krosnick et al., 2002). Therefore, in future, the MTISES should be restructured to have alternative anchor labels, or to remove a median response making it more likely that a respondent is forced to choose a meaningful response due to the fact that the neutral or median response is removed.

In an attempt to ensure this was not just a single district who needs to relook at their district’s RtI structure, it would be beneficial to replicate or implement a study in neighboring districts or “sister districts” (similar size and demographics) to determine if they are having the same or similar issues with implementation of RtI. Given the results it is difficult to not become cynical towards the organization and execution of this single

district's RtI program instead of viewing as a holistic RtI issue, studying surrounding issues would help to clarify this concern (district issue versus programmatic issue). In addition, looking into the differences in implementation along the vertical alignment of campuses within the district would help to identify if the issues exist only at the elementary level or throughout the district, indicating a total systematic breakdown.

Finally, it would be ideal to implement all of the above recommendations in a single study as was attempted with this research study to have a research based and designed RtI program that is effective and efficient. Implementing RtI as soon as a student is struggling, training teachers on what RtI is, the tools they are using, understanding assessment and intervention, and then empowering all involved in the process are key to the success of an RtI program. Combining these positive constructs is the charge of future RtI research.

Conclusion

This study looked at the effects of a technology-rich RtI program on students' reading scores across an academic year, teachers' self-efficacy after a year of coaching and professional development, and teachers' perceptions towards the RtI process. One-thousand, three hundred and thirty-nine Kindergarten through 4th grade students from four campuses in a large suburban school district in southeast Texas were assessed using the I-Station curriculum and assessment. In addition, their Kindergarten through 4th grade teachers completed the Multi-Tiered Instruction Self-Efficacy Scale (MTISES) survey to measure their self-efficacy with RtI. Finally, of these Kindergarten through 4th grade teachers, 22 volunteered to be interviewed regarding their perceptions of RtI. Results were analyzed using percentages and paired samples t-tests, and then interviews were

analyzed for common emergent themes. Results of interviews and surveys revealed that coaching and professional development did not affect self-efficacy because teachers were not aware it was being offered to them, they did not attend, or they did not understand the RtI process in general. Despite this, students still made gains in their reading scores.

Students made progress in their reading fluency despite the teacher's lack of knowledge of how the RtI program should work, how their interventions were meant to be implemented, and without knowing what the overall structure should look like. This can be explained in two ways: 1) the I-Station program is so successful at identifying student weaknesses and building in lessons naturally to address them that despite teacher instruction, the program improved student scores; or 2) as has been seen with John Hattie's research (2014), the key to student learning lies not in the programs used, in the structures of the curriculum, or in amount of time a student is exposed to a lesson, but rather in the teacher's influence on the student, their caring, passion, and insight, and in how the teacher stays in tune with their learners and moves them from concept to concept. After evaluating over 800 studies on education, curriculum, and learning, what Hattie (2014) found was that learning occurred because of the teacher student relationship, not the curriculum, but that solid curriculums were only helped by positive teacher influence. In the instance of this study, this may also be the case for why students made progress in their reading scores despite the teachers not knowing how to implement or execute the district's RtI plan and policy.

Failure to implement effective RtI practices started at the district level with a lack of training in two major areas:

1. The basics of RtI

2. The use of the mandated program of I-Station

There is no way to know if proper training would solve the need for further resources and staff as this research suggests. This is an area to look into with further research, once fidelity with training is established.

When it comes to time, the use of I-Station should be saving teachers' time with its smart technology and ability to adapt to students as they progress through the lessons. Was it not saving time because the district was arbitrarily limiting its uses, or was it not saving time because the staff had not been trained to use I-Station? This question and its answer are, most likely, at the heart of the problem with implementation and fidelity of RtI in school districts across America.

When staff cannot even define what RtI stands for, it stands to reason that they cannot be expected to implement with fidelity and accuracy the policies and provisions of RtI. While the district had a great plan in place and its teachers were all very knowledgeable people with good hearts and willingness to learn and train, the critical key to success (Hattie, 2014), the district's downfall was in execution and follow through of its well-designed plan. Despite this, the district's thoroughly-investigated research and selection of the RtI program, I-Station, made promising gains for student reading scores despite the flaws in execution of the RtI design policy, thus achieving the district's gains for students while frustrating the support staff and teachers. The key take-away from this study is that **knowledge is power**. All of the positive outcomes expressed in prior research and literature could have been achieved most likely with the district's thorough and well-thought-out plan for RtI implementation had they started with a solid foundation of training and education.

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APPENDIX A
EMAIL REQUESTING INTERVIEW PARTICIPATION

APPENDIX A

EMAIL REQUESTING INTERVIEW PARTICIPATION

Hello Fabulous Teachers,

Your principal, <Insert Principal Name>, has been so gracious as to grant me access to your campus for my doctoral dissertation research. I appreciate your participation in filling out my surveys. It really does mean a lot, both in furthering the research and knowledge base on RTI, but also in helping me achieve a life long goal of mine. Thank you! Thank you!

In addition to the surveys, I need to interview several teachers. Ideally, I need some pretty new teachers...and then some more experienced, "veteran" teachers. If you are willing to participate in an interview, would you please email me back and let me know that-along with the number of years of experience you have teaching?

The interview will take about 30-45 minutes depending on your responses and I will meet you at a convenient location for you...either your school during conference, or if you're willing, a Starbucks on the weekend. I will buy your Starbucks or sonic drink, whatever your preference as a thank you.

Please let me know if you are willing to participate, and again, thank you so much for your help.

Meredith Lundin

APPENDIX B
RTI SELF-EFFICACY SURVEY

APPENDIX B

RTI SELF-EFFICACY SURVEY

MTISES, Multi-Tiered Instruction Self-Efficacy Scale(Also known as the RTISES-II, Response to Intervention Self-Efficacy Scale-II)

All scale items use the following response options:

I'll take anything	I'm starting to get it, but I want lots more	I do this, but I could benefit from more	I don't feel the need for more	I feel ready to help others
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

DIRECTIONS: For most of the following questions, you will be asked to indicate your needs for professional development in various educational practices. Please indicate the level of professional development you feel you need for each item.

1. How much professional development do you need about differentiating presentation of information for various learning styles (listening, seeing, manipulating, etc.)?
2. How much professional development do you need about differentiating presentation of information for various ability levels (gifted, students with disabilities, etc.)?
3. How much professional development do you need about differentiating presentation of information for varied levels of English language proficiency?
4. How much professional development do you need about adapting learning activities to engage students of varied learning styles (listening, seeing, manipulating, etc.)?
5. How much professional development do you need about adapting learning activities to engage students of various ability levels (gifted, students with disabilities, etc.)?
6. How much professional development do you need about adapting learning activities to engage students of varied levels of English language proficiency?
7. How much professional development do you need about allowing students to demonstrate learning in ways that accommodate varied learning styles (seeing, listening, manipulating, etc.)?

8. How much professional development do you need about allowing students to demonstrate learning in ways that accommodate varied ability levels (gifted, students with disabilities, etc.)?
9. How much professional development do you need about allowing students to demonstrate learning in ways that accommodate varied levels of English language proficiency?
10. How much professional development do you need to find research-based articles and/or books on practices relevant to specific educational needs of students?
11. How much professional development do you need to judge the trustworthiness of research-based articles or books about effectiveness of educational practices?
12. How much professional development do you need to evaluate whether the research-based practices are worth while for my specific students and purposes?
13. How much professional development do you need to compare effectiveness of research-based educational practices for the best fit for my particular student population?
14. How much professional development do you need about changing educational practice to incorporate new instructional practices found in a research-based article or book?
15. How much professional development do you need to work with a team(s) of grade-level or content-specific educators to assess specific learning needs?
16. How much professional development do you need to work with a team(s) of grade-level or content-specific educators to solve specific learning needs?
17. How much professional development do you need to collaborate with professionals outside my own field of specialty to assess specific learning needs (for example, teachers working with school psychologists or guidance counselors)?
18. How much professional development do you need to collaborate with professionals outside my own field of specialty to solve specific learning needs (for example, teachers working with school psychologists or

guidance counselors)?

19. How much professional development do you need to use data from appropriate assessment tools to clarify the specific problem for a struggling student?
20. How much professional development do you need to use specific assessments to measure student progress on specific learning objectives?
21. How much professional development do you need to use results of universal screening instruments (like PALS, DIAL-R, or DIBELS) to determine which students may be at risk of specific learning needs?
22. How much professional development do you need to use results of published curriculum-based assessments for instructional planning (like textbook assessments, PALS quick checks, etc.)?
23. How much professional development do you need to make decisions about academic instruction for individual students based upon data?
24. How much professional development do you need to use data on student progress to improve instructional practice?
25. How much professional development do you need to use teaching techniques described in a research-based article or book?
26. How much professional development do you need to use interventions to address specific learning objectives of specific students?
27. How much professional development do you need to implement plans as designed to solve problems for individual students or small groups of students?
28. How much professional development do you need to respond to a learning need when first evident?

APPENDIX C
APPROVAL TO CONDUCT RESEARCH

APPENDIX C

APPROVAL TO CONDUCT RESEARCH



University
of Houston
Clear Lake

COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS
EXPEDITED REVIEW APPROVAL FORM

2700 Bay Area Blvd.

Houston, TX 77058-1098

281.283.3015 FAX
281.283.2143

CPHS REVIEW DATE: 6-20-2016

DATE: 6-20-2016

TITLE: THE EFFECTS OF TIER ONE RTI AT THE ELEMENTARY SCHOOL LEVEL USING I-STATION ON READING TEXT FLUENCY

PRINCIPAL INVESTIGATOR: _____

STUDENT RESEARCHER: Meredith Lundin, Ed.S., LSSP, NCSP

FACULTY SPONSOR: Dr. Michelle L. Peters, Ed.D.

PROPOSED PROJECT END DATE: June 2, 2017

SECTION A.

**IDENTIFY TYPE OF RISK FOR PROPOSAL STUDY.
IDENTIFY APPROPRIATE RESEARCH CATEGORY # FROM FEDERAL GUIDELINES.
PLACE AN "X" BESIDE ONE TYPE OF RISK.**

X	Type of risk	Research Category #	Code of Federal Regulations (CFR)	CPHS School Representative's Action
	1. Exempt		45 CFR 46.101 (b) (1) – (6). See Appendix 1.	Review and notify PI or Faculty Sponsor of exempt status; cc: Office of Sponsored Programs (sponsoredprograms@uhcl.edu mailto: Hohmann@uhcl.edu).
X	2. <u>Minimum Risk</u> : Research involves minimal risk AND is found on list of allowable research	7, Assessments, Surveys, Interviews	45 CFR 46.110 (a) "list of categories" and 46.110 (b) See Appendices 2 & 3.	Review and notify PI or Faculty Sponsor of review status; cc: Office of Sponsored Programs (sponsoredprograms@uhcl.edu mailto: Hohmann@uhcl.edu).
	3. <u>Minimum Risk</u> : involves minimal risk but is not on list of		45 CFR 46, Common Rule	Forward to Office of Sponsored Programs (sponsoredprograms@uhcl.edu mailto: Hohmann@uhcl.edu) to coordinate a meeting for full CPHS review.

	allowable research for expedited review			
	4. <u>Above Minimum Risk</u>		45 CFR 46, Common Rule	Forward to Office of Sponsored Programs (sponsoredprograms@uhcl.edu to Hohmann@uhcl.edu) to coordinate a meeting for full CPHS review.

SECTION B.

PLACE AN “X” BESIDE EACH OF THE 4 ITEMS BELOW, OR EXPLAIN THE ISSUE IN THE REVIEWER’S RECOMMENDATION SECTION BELOW.

X	THE FOLLOWING REQUIREMENTS ARE MET:
X	Risks have been minimized and are reasonable in relation to expected benefit of research.
X	Selection of subjects is equitable with safeguards for protecting the rights and welfare of vulnerable subjects.
X	A proper informed consent document is present.
X	Protection of privacy has been assured via a process to safeguard the data.

SECTION C.

PLACE AN “X” BESIDE ONE RECOMMENDATION.

X	REVIEWER’S RECOMMENDATION
X	1. Approve
	2. Conditional Approval. Need to submit modification(s):
	<i>Provide explanation:</i>
	3. Call a full CPHS meeting for one of the following reasons:
	a. Above Minimum Risk
	b. Minimum Risk but not on allowable “list of categories” for expedited review.
	c. Disapproved under expedited review.
	<i>Provide any additional information:</i>
	d. There are unresolved issues to be addressed.
	<i>Provide any additional explanation:</i>
	4. Reject as submitted.
	<i>Provide explanation:</i>

Appendices:

App. 1. **Exempt** research activities under 45 CFR 46 [§46.101(b) (1) through (6)]

App. 2. **Expedited** review procedures for allowable research categories. See §46.110 (a) “a list of categories” for allowable research categories, and see §46.110 (b) (1) and (2).

App. 3. **§46.110 Expedited excerpt**

Website for 45 CFR 46 Common Rule:

<http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html>

APPENDIX D
SURVEY COVER LETTER

APPENDIX D

SURVEY COVER LETTER



April 2015

Dear Teacher:

Greetings! You are being solicited to complete a series of surveys regarding teachers' perceptions of RtI and the *Multi-Tiered Instruction Self-Efficacy Scale*. The purpose of this survey is to examine the perceptions of teachers towards the RtI process, along with their sense of self-efficacy when it comes to implementing RtI, collecting data, and progress monitoring students in RtI. The data obtained from this study will provide useful information regarding improving the RtI process and better supporting school personnel in charge of implementing RtI.

Please try to answer all the questions. Filling out the attached survey is entirely voluntary, but answering each response will make the survey most useful. This survey will take approximately 10-20 minutes to complete and all of your responses will be kept completely confidential. No obvious undue risks will be endured and you may stop your participation at any time. In addition, you will also not benefit directly from your participation in the study.

Your cooperation is greatly appreciated and your willingness to participate in this study is implied if you proceed with completing the survey. Your completion of the *Multi-Tiered Instruction Self-Efficacy Scale* is not only greatly appreciated, but invaluable. If you have any further questions, please feel free to contact Dr. Michelle Peters (petersm@uhcl.edu) or myself (meredithlundin@hotmail.com). Thank you!

Sincerely,

Meredith Lundin, Ed.S., LSSP, NCSP
281-468-9651
meredithlundin@hotmail.com

APPENDIX E

INTERVIEW PROTOCOL

APPENDIX E
Interview Protocol

Each interview will begin with a brief explanation of the study to the participant along with an explanation of how their identity and responses will be kept entirely confidential.

1. How long have you been teaching?
2. What grades have you taught?
3. What is your role and responsibility in the district's RtI model?
4. What do you know about RtI?
5. Have you been clearly communicated the district's RtI procedures and expectations?
 - b. Do you feel all stakeholders have?
6. What do you hope the RtI model can provide for the teachers and students at this school?
7. As you have implemented RtI:
 - a. What training have you had?
 - i. Who provided the training?
 - ii. How did you feel about the training?
 - b. What resources have you used?
 - i. Do you feel these are sufficient?
 - ii. Can you think of others needed?
 - c. What structures have been in place to support you?
 - d. In what specific areas of implementation would you like to have support?
8. Have you felt supported from leadership and administration during the implementation process?
9. How do you feel about the structure and effectiveness of the tiers?
10. How are instructional methods and interventions selected?
11. Do you think the type of assessments administered to monitor how students respond to instruction is appropriate?
 - b. Do you think the amount of assessments is appropriate?
 - c. Were you trained to modify intervention plans based upon a student's responses to intervention?
12. What difficulties do you see when implementing RtI?
13. Do you feel confident about implementing RtI?
14. Do you know the procedure to exit a student from the RTI process?
15. Is there anything else you would like to tell me in regards to your experience with RtI?
16. What is your understanding of how data is used to support student intervention plans?

APPENDIX F
INFORMED CONSENT TO PARTICIPATE IN SURVEY

APPENDIX F

INFORMED CONSENT TO PARTICIPATE IN SURVEY

You are being asked to participate in the research project described below. Your participation in this study is entirely voluntary and you may refuse to participate, or you may decide to stop your participation at any time. Should you refuse to participate in the study or should you withdraw your consent and stop participation in the study, your decision will involve no penalty or loss of benefits to which you may be otherwise entitled. You are being asked to read the information below carefully, and ask questions about anything you don't understand before deciding whether or not to participate.

TITLE

THE EFFECTS OF TIER 1 RtI AT THE ELEMENTARY SCHOOL LEVEL USING I-STATION ON READING TEXT FLUENCY

STUDENT RESESEARCHER

Meredith Lundin, Ed.S., LSSP, NCSP

FACULTY SPONSOR

Dr. Michelle L. Peters, SOE, Research & Applied Statistics

PURPOSE OF THE STUDY

The purpose of this study will be to determine if implementing Tier 1 RtI at the elementary school level using I-station intervention and curriculum will have a positive effect on all students' classroom success, specifically in the area of reading. In addition, the study will look at teacher perceptions towards the RtI process, and teacher self-efficacy in relation to implementing RtI. Finally, the study will see if teacher self-efficacy impacts the effectiveness of the RtI.

PROCEDURES

The research procedures are as follows: Surveys will be administered three times a year following their professional development/coaching meetings that are required as part of the district's RtI program (August prior to school starting, winter, and spring). It will take about 10-20 minutes to complete all of the surveys, and they can be handed in at that time, or inter office mailed to me at no expense to the volunteer.

EXPECTED DURATION

The total anticipated time commitment will be approximately no more than 60 minutes across the school year divided into three 20-minute sessions.

RISKS OF PARTICIPATION

There are no anticipated risks associated with participation in this project.

BENEFITS TO THE SUBJECT

There is no direct benefit received from your participation in this study, but your participation will help the investigator(s) better understand the RtI process within the

district, benefits of the chosen RtI program, and obstacles to supporting staff in charge of implementing the district RtI program.

CONFIDENTIALITY OF RECORDS

Every effort will be made to maintain the confidentiality of your study records. The data collected from the study will be used for educational and publication purposes, however, you will not be identified by name. For federal audit purposes, the participant's documentation for this research project will be maintained and safeguarded by the Student Researcher for a minimum of three years after completion of the study. After that time, the participant's documentation may be destroyed.

FINANCIAL COMPENSATION

There is no financial compensation to be offered for participation in the study.

INVESTIGATOR'S RIGHT TO WITHDRAW PARTICIPANT

The investigator has the right to withdraw you from this study at any time.

CONTACT INFORMATION FOR QUESTIONS OR PROBLEMS

If you have additional questions during the course of this study about the research or any related problem, you may contact the Student Researcher, Meredith Lundin, at phone number (281) 468-9651 or by email at meredithlundin@hotmail.com. The Faculty Sponsor Dr. Michelle Peters, Ph.D., may be contacted at phone number (202) 321-3752 or by email at PetersM@UHCL.edu.

SIGNATURES:

Your signature below acknowledges your voluntary participation in this research project. Such participation does not release the investigator(s), institution(s), sponsor(s) or granting agency(ies) from their professional and ethical responsibility to you. By signing the form, you are not waiving any of your legal rights.

The purpose of this study, procedures to be followed, and explanation of risks or benefits have been explained to you. You have been allowed to ask questions and your questions have been answered to your satisfaction. You have been told who to contact if you have additional questions. You have read this consent form and voluntarily agree to participate as a subject in this study. You are free to withdraw your consent at any time by contacting the Student Researcher or Faculty Sponsor. You will be given a copy of the consent form you have signed.

Subject's printed name: _____

Signature of Subject: _____

Date: _____

Using language that is understandable and appropriate, I have discussed this project and the items listed above with the subject.

Printed name and title: _____

Signature of Person Obtaining Consent: _____

Date: _____

THE UNIVERSITY OF HOUSTON-CLEAR LAKE (UHCL) COMMITTEE FOR PROTECTION OF HUMAN SUBJECTS HAS REVIEWED AND APPROVED THIS PROJECT. ANY QUESTIONS REGARDING YOUR RIGHTS AS A RESEARCH SUBJECT MAY BE ADDRESSED TO THE UHCL COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (281-283-3015). ALL RESEARCH PROJECTS THAT ARE CARRIED OUT BY INVESTIGATORS AT UHCL ARE GOVERNED BY REQUIREMENTS OF THE UNIVERSITY AND THE FEDERAL GOVERNMENT. (FEDERALWIDE ASSURANCE # FWA00004068)