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Effects of a response to intervention program for middle school students with reading and math difficulties

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**EFFECTS OF A RESPONSE TO INTERVENTION PROGRAM FOR
MIDDLE SCHOOL STUDENTS WITH READING AND MATH DIFFICULTIES**

by

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A Thesis

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Dedication

I would like to dedicate this manuscript to my husband, Herbert B. Hendrickson.

Acknowledgements

Abstract

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2011/12
S. Jay Kuder, Ed.D.
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The purpose of this descriptive study was to determine whether a response to intervention program (RTI) would be beneficial to students in the middle school population. Classes in two urban schools were observed and data were collected to decide the effectiveness of the RTI strategies and interventions which were given to the students. The first class was a language arts class and the second class was a math class. The students in the language arts class responded very well to the interventions the teacher taught them and all but one in this class were able to earn the grades that would allow them to remain in general education. The second class was a math class. These students also responded well to the interventions taught by the teacher. Most of these students showed a consistency in their grades and maintained their grade level throughout the first two marking periods. All but six students maintained their grades or better, and most of them remained at grade level.

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Chapter 1
Introduction

Response to intervention (RTI) is used as a tiered system to identify struggling

learners who might be referred for special education, usually at the elementary school

level, but not always. RTI uses many strategies to identify students who struggle

academically and who have problems with reading performance and other academic

problems, including reading disabilities, learning disabilities and math disabilities. This

is crucial for students who have disabilities because their reading problems may be the

basis for their disabilities. My interest in RTI is to help the student who is at-risk of

failing school and subsequently failing in life. Others might be concerned for the same

reason. When a person is successful in school academically they are likely to be a more

satisfied person.

In the middle school, students' academic failures have often already been

established. For this reason it is easier to design middle school assessments which create

differences among students who have larger and smaller deficits (Fuchs, et al., 2010). It

is because of this that it does not seem plausible to use scarce resources for screening

purposes in identifying students at the middle school level who are at risk for failure

academically. What makes sense is to rely on already-existing assessment data. This may

be generated from the classroom teacher's Curriculum-based Assessments (CBAs),

standardized assessments and teacher nomination. Students' poor performance on these

measures have already been identified as those who are at-risk academically. Fuchs, et al., is saying that the testing that has already been done with the students can be used in lieu of the learning evaluations that a student goes through by the Learning Disabilities Teacher-Consultant (LDT-C) and others. Therefore, testing them again is not necessary because poor performance is already documented.

The strategies that are used to help these at-risk students include interventions such as curriculum-based measures and validated instructional programs, tutoring programs, word study strategies, vocabulary, grammar, phonics, fluency, and comprehension strategies, etc. Their struggles academically may be caused by neurological deficits or they may be caused by other problems, such as social or emotional problems, etc. Curriculum-based assessment, which is considered part of RTI, is one that has been used by many educators. Several researchers have produced models of CBAs which are useful in the instructional planning of the students' curriculum, using components of the RTI approach.

Where did RTI come from? The whole concept of RTI was first suggested in 1983 from the publication, *A Nation at Risk.* This article caused states, local districts, and the federal government to focus on how to improve student performance through changes made in the public school systems around the country. The federal law, *Individuals with Disabilities Education Act (IDEA) of 1997,* was one of the first pieces of legislation that brought about changes to the regular and special education classroom. In November 2004, this law was reauthorized and renamed the *Individuals with Disabilities Education Improvement Act (IDEIA).* One of the important things that this reauthorized law did was to remove the reliance on I.Q. testing as a required criterion of the identification of

students with learning disabilities. This law mandates the provision of early intervention, special education and related services to all of the children in the United States who have disabilities. That includes more than 6.5 million infants, toddlers, children and youth who have been diagnosed with disabilities of some kind or another.

Why might RTI have the potential to identify at-risk students and improve reading performance? The concept of RTI is built on levels, or tiers of testing and instruction and is normally launched in the early elementary grades. In RTI there are three or more tiers. In Tier 1, all of the students in the primary grades from kindergarten through third grade are given instruction in basic reading skills, including phonemic awareness, phonics, vocabulary, fluency, and comprehension. Instruction is delivered by the general education teacher. The students who do not respond to Tier 1 interventions move on to Tier 2. They are given studies supplemental to the Tier 1 basic reading program. These students are taught by the general education teacher, special education teacher, or other professionals possibly from the Child Study Team (CST). The Tier 3 level is for the students in Tier 2 that did not respond to the supplemental instruction. At Tier 3 the students are either given more intensified instruction or are referred to the Intervention and Referral Services (I&RS) team to be assessed for identification of SLD or another type of disability. This is the point where the student will be identified with a disability and placed in a special education classroom or found to not have a disability and allowed to continue in a general education classroom. It is more likely that the student will be found to need special education services since he or she has already been struggling with the intervention strategies that have been given them. The reasons for their difficulties will be identified in the assessment process.

In contrast, the focus for this thesis is to follow the middle school-aged student who is struggling academically to see how RTI may identify them for at-risk learning problems. Even though RTI was initially developed as an early intervention for the elementary students in kindergarten through third grade, it is hoped that implementing it at the middle school level may help the older student as well. Research on the effectiveness of reading interventions for middle school-aged students has shown that it is possible for an adolescent to improve their reading comprehension skills. Reading problems occur because the student has not been able to learn the basics of reading, including phonological awareness, phonics, vocabulary, comprehension, fluency, and other problems that are associated with reading and, therefore, fall behind other students who have been able to keep up with their age and grade level. This research has shown promise toward making improvements in the reading comprehension abilities of these students. Other researchers have studied reading programs that were designed for the struggling adolescent reader. They concluded that reading programs, which included large-group, small-group, and computer-assisted individualized learning, were effective and had positive results. They also suggested that instructional-process programs using cooperative learning were effective as well. They discovered that computer-assisted instruction and reading strategy programs that were given to the struggling adolescent reader, but did not include cooperative learning, were not as effective. Their findings give insight into the current research regarding the effectiveness of the strategies that are best practices for the literacy of the adolescent reader. They do, however, conclude that larger-scale and more rigorous studies are needed to corroborate the findings of these current studies (Cantrell, et al., 2010).

<u>Research Problem</u>

The overall question to be answered in this study is as follows:

Can the implementation of an RTI program help struggling readers in sixth through eighth grades to improve their reading and math skills?

Specific questions to be answered are:

Does the RTI program in a middle school decrease the rate of referrals to special education? Have there been any changes in the students' academic performance in reading and overall academic performance as a result of their involvement in the RTI program?

It is hypothesized that this study will show that referral rates will decrease and their grades and academic performance will improve as the students in the middle school population will be able to learn how to read as a result of the RTI interventions that they are given.

<u>Key Terms</u>

Response to intervention (RTI) is a tiered-level-of-teaching method using strategies and interventions that are appropriate for the individual student for testing and instruction. It is used to identify students for referral to special education.

Curriculum Based Assessment (CBA) is an assessment that is based on the curriculum that the teacher is using. It is used to measure the levels of a student's performance.

3-Tiered Approach to Learning is an approach which begins at Tier 1 with basic and simplified learning strategies for both testing and instruction, then moves on to the next level of difficulty at Tier 2, and ends at an even more difficult level with Tier 3. Its purpose is to find the levels of academic performance of a student. It is part of the RTI method of identifying students for special education services.

Child Study Team (CST) is the team that comprises the Learning Disability Teacher-Consultant, the School Psychologist, the Social Worker, the Speech and Learning Therapist and any other discipline that the student may need to rely on for his/her educational needs.

Intervention and Referral Services (I&RS) Team is the team who meets to decide which students should be referred for special education services. It should be comprised of general education teachers, academic coaches, guidance counselors, etc., who have been appointed by the principal of the school.

Specific Learning Disability (SLD) is a diagnosis of a learning disorder that has neurological impairment implications.

Special Education is a term used for the program where students who need specialized educational strategies and interventions are grouped together for specialized education.

General Education is the term used for the program where students who do not need specialized education are taught by a teacher who has been trained to teach the regular education student.

Interventions are strategies that are given to students in order to teach concepts in a clear manner.

Strategies are ways of teaching topics such as phonics, math, and reading in order to make them easy to understand.

Lexiles are units of measures of growth in reading, including comprehension and fluency.

<u>Implications</u>

The implications of using RTI as an identification tool for special education are many. Either the students will learn to read using the strategies and interventions which the teachers are teaching them, making them eligible to remain in general education or they will struggle with these same interventions, causing them to be identified for special education. This will include different reading programs and other strategies that the teachers decide would be the best teaching tool for the students. They will be easy for the students to learn from and also will be something that peaks their interest. If they do find themselves struggling, then the teacher will test their skills and decide whether they should back up and regroup, using easier-to-understand strategies and interventions until the students can achieve the level in which they are struggling.

Summary

The purpose of this research project is to find out how the process of response to intervention benefits the students at the middle school level who are struggling in the areas of reading and math. The problem is that the students never achieved grade-level reading skills. The implications are that they still can learn to read using research-based strategies and interventions. The students will be observed as they work on these strategies and interventions. Their responses will be recorded and the results of their interventions will be documented to see if these strategies had any effects on their reading levels. The teachers will be able to give input into how they are using their interventions and strategies to help their struggling readers. Will response to intervention help the struggling reader in middle school? It is hoped that the answer is "yes."

Chapter 2
Review of Literature

This literature review will include a review of studies relating to the

implementation of response to intervention (RTI) programs in the middle school

population. It will also consider the pros and cons of these programs and how effective

they are in light of the adolescent students' reading performance and overall academic

performance in these upper grades. Also considered will be whether the RTI

interventions and strategies have had any impact on the rate of referrals to special

education in a middle school. To begin with, the beginnings of RTI will be explored and

the endorsements for this movement will be investigated.

Background

Before RTI was developed the "discrepancy" approach, which is the traditional

process of identifying students who have learning problems such as specific learning

disabilities and reading disabilities, was used to identify students who may have a

specific learning disability with a discrepancy between achievement and aptitude. The

discrepancy approach says that the struggling learner must wait until he or she has failed

before they are evaluated or assessed to identify potential problems they may be

experiencing. If they fail consistently in the first, second and third grades they will be

referred for evaluation and depending on the results of these assessments, they will be put

into a special education classroom with a diagnosis of "Specific Learning Disability" or

"Reading Disability' or some other disability. Their IQ testing will have shown that they

are intellectually able to succeed educationally, but their academic evaluation shows that

they are at-risk for failing. This is based on the fact that they did not show through the testing that they were able to read, to understand phonological awareness phonics, decoding, vocabulary or are able to read with fluency or comprehension. They may have also failed in the math and writing categories. This is called the "wait to fail" approach or the "discrepancy" approach because their IQ, which was average, did not match their learning ability. For obvious reasons this approach is unsatisfactory. One, a student must wait until they are past the third grade in order to be identified as having a specific learning disability and until they can begin to receive interventions to help them. In the interim, they are continuing to lose ground academically, falling so far behind that they will find it very difficult to catch up to the academic level for their age and grade level. In about 1983, when response to intervention was proposed, the idea was to find these struggling learners as early as possible.

As stated in Chapter 1, RTI was first suggested in 1983 from the publication, *A Nation at Risk.* From this article pointing to the problem of students experiencing learning problems in our schools, the federal government began to focus on how to improve student performance through changes made in the public school systems around the country. From this focus, the federal law, *Individuals with Disabilities Education Act (IDEA) of 1997,* was voted on and became the first piece of legislation which brought about changes to the regular classroom. Later, in November 2004, this law was reauthorized and became the *Individuals with Disabilities Education Improvement Act (IDEIA).* To recap, the main thing that this law did was to take the reliance on I.Q. testing out of the equation and it was no longer used as a required criterion of the identification of students with learning disabilities. It suggested the importance of early intervention,

special education and related services to all of the children in the United States who have disabilities and, in fact, mandated these services. So now the focus has become early intervention through the response to intervention approach as opposed to evaluating the students at the beginning of third grade and finding that they have a learning problem that they could have been working to correct for two or three years.

The President's Commission on Excellence in Special Education (PCESE; 2001) endorsed the RTI diagnostic approach, which appears to be the most popular alternative to the discrepancy approach (Fuchs, et al., 2003). The discrepancy approach is when the diagnostician looks at both the I.Q. (normal to high) of the student and the lower achievement scores from the test measures, noting the discrepancy between the two and, from the information that is noted, decides that there is enough of a discrepancy between the two that there must be a learning disability. The response to intervention approach considers the struggles of a learner as they are being assessed in class and notes their inability to achieve from the curriculum that is being taught. The students are then given interventions to see if their academic performance improves. If not, then they will receive more intensified interventions, which may include easier material for them to understand or an alternate strategy. If they fail at this level, they will continue to be taught using alternate methods or intensity of instruction and may then be referred for a learning evaluation to see if they should be considered for special education. RTI includes different levels, or Tiersas described above. The RTI approach is what most professionals have chosen to replace the current SLD diagnostic practices.

The Striving Readers Act:

Another endorsement by the U.S. government is called the *Striving Readers Act.* This came about from the *Striving Readers Program,* which was implemented in the middle and high schools of eight sites and included six large school districts which were part of a group of multiple rural districts. It also included one statewide education system for students in a juvenile justice system. The components that were targeted included the students reading two or more grade levels behind their grade placement. Literacy instruction required teachers in core subjects to teach literacy skills specific to their core subject for all of their students. The program took two years to complete and ended in the 2007/2008 close of the school year. Data from some of the programs note promising student outcomes. The result of this program was the birth of the *Striving Readers Act of 2007.* Due to the urgent need of the nation's adolescent literacy challenges, the federal government has taken the initiative to increase their investment in middle school and high school literacy by authorizing the *Striving Readers Act of 2007.* It was introduced with strong bipartisan support in the U.S. House of Representatives and the U.S. Senate to authorize the *Striving Readers Program* and the intent was to expand it to students in every state. The funding was authorized in fiscal year 2007 at $200 million with increasing funding to fiscal year 2011. Its proposed purpose was to improve middle school and high school achievement rates and high school graduation and college readiness by establishing literacy initiatives.

The *Striving Readers Act* is an endorsement of RTI by the federal government to improve middle school and high school literacy rates, which is done through RTI. Ultimately it is hoped that this will cause the referral rates to decrease. It is also hoped

that there will be evidence of a decline in dropout rates. The *Striving Readers Act* provides funding for the schools to implement their RTI programs and encourages literacy in the upper grades.

<u>The Implementation of the RTI Program</u>

Many struggling learners are delayed in their reading development and cannot read the material at the reading level of their peers. If one cannot read, they will have difficulty learning because in school in order to learn something you must be able to read about it. It is hoped that the development of the RTI program will ameliorate challenges that these students face. The studies that were reviewed included grades 5 through 9, and sometimes beyond. However, the focus of this research was to stay within the middle school age range.

Support of Adolescents' Literacy Development through RTI:

In the study by Graves, et al., (2011), *The Effects of Tier 2 Literacy Instruction in 6th Grade: Toward the Development of a Response-To-Intervention Model in Middle School,* by Graves, et al., (2011), the focus was on decoding instruction, fluency building, and reading comprehension with an emphasis on vocabulary instruction. Their goal was two-fold: 1) to compare Tier 2 evidence-based instruction in reading to normal instruction given to sixth graders who were either considered "far below" or "below" the basic literacy level; and 2) to examine the development of an RIT model in a middle school setting. The materials used were:

- *Corrective Reading* (Englemann, et al., 1999), which was used with students at the middle school level who had a reading grade level of 0 to 2.4;

- *Reading Excellence: Word Attack and Rate Development Strategies* (REWARDS; Archer, et al., 2001), which was used with students with a reading grade level of 2.5 or higher;

- *Read Naturally* (Inhot, et al., 2001), which was used for fluency building; and

- *Daybook for Critical Reading and Writing* (Spandel, et al., 2001), which was used for vocabulary building and reading comprehension.

The most significant finding of this study was a substantial statistical difference between the treatment and control groups for the students who received the Tier 2 intervention on oral reading fluency (ORF). These students gained an average of 10 words per minute (wpm) in 10 weeks. This is a significant gain and was encouraging as the success in oral reading fluency is considered a predictor of reading comprehension, according to some, and speaks to some of the concerns that have been noted by researchers about the difficulty that students have in increasing their fluency as they grow older (Graves, et al., 2011). The research suggests that average sixth graders may be expected to grow in oral reading fluency at a rate of less than one word per minute per week. The students in this study actually did better than expected. These results appear to indicate that the decoding instruction and fluency-building interventions probably played a very important role in the gain that was noted in ORF for the students who received the interventions. It is not known, however, which component played the most important role in the students' progress. According to the researchers, the results appear to show that Tier 2 instruction along with the evidence-based Tier 1 instruction played a substantial role in the successful achievement of the sixth-grade students who took part in this study.

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In the study by Cantrell, et al., (2010), *The Impact of a Strategy-Based Intervention on the Comprehension and Strategy Use of Struggling Adolescent Readers,* the researchers showed that there is promise and hope for the struggling adolescent reader. They used the *Learning Strategies Curriculum* (LSC) as an intensive supplemental reading program which focuses on word identification, visual imagery, self questioning, vocabulary, paraphrasing, sentence writing and comprehension. The strategies that were used include cognitive, which is comprised of paraphrasing and questioning; metacognitive, which is comprised of comprehension monitoring and rereading and was used to monitor the progress of the student; and behavioral, which were the actions students took to learn, such as using a dictionary to clarify the meaning of a word. The result of this study showed that sixth graders were more successful at learning to read than the ninth graders, indicating that the younger the students are, the better they can learn. According to these researchers, even though the act of learning to read occurs throughout the lifespan of a person, they discovered that the age of the learner was important in actually responding to the interventions they were given. The sixth graders were able to improve in their reading abilities by using the LSC in a more beneficial way than the ninth graders. This showed that there is a difference in the learning needs of the younger versus the older adolescents.

The study, *RTI in a Middle School: Findings and Practical Implications of a Tier 2 Reading Comprehension Study* by Faggella-Luby, et al., (2011), set out to investigate the effectiveness of three treatment interventions that are conditions of instruction for at-risk students in the fifth and sixth grades in an urban middle school. The students were randomly assigned to three conditions: Experimental (Story Structure), Comparison

(Typical Practice) and Sustained Silent Reading. These strategies were used to improve

reading comprehension. Through story structure (SS), the targeted lesson was to teach

students how to self-question, analyze the structure of a story, including inputting the

elements of a story on a Story-Structure Diagram, and summarizing. In the comparison

condition, the typical practice (TP) instruction was designed by the three reading

specialists who taught the students. Each teacher designed their teaching curriculum

without input from the other two teachers. In the sustained silent reading (SSR)

condition, the students were to "Drop Everything and Read" for 30 minutes each day

during the intervention.

The findings of this study are supportive regarding the use of RTI instruction in

the middle school population and especially to the benefits of explicit Tier 2 instruction

across each of the three primary measures that were used. Specifically, the evidence

supports the nature of instruction regarding the behaviors that are associated with

successful reading (i.e., SS and TP conditions), which are necessary for successful

comprehension and continued practice (i.e., SSR). Although there were some areas that

could be improved in the study's findings, such as Tier 2 interventions improving in the

instructional intensity in order to improve the outcomes for the struggling students, there

were also some very positive results of this study. An important outcome of the study

showed that it is not too late to supply intervention in the middle school population for

struggling readers. Specifically, one important main effect regarding grade level on the

GMRT-4 Comprehension measure showed that even though students' performance in

both of the instructional conditions were low, their comprehension abilities had not

stopped growing. This pointed to the fact that the use of RTI as a framework can be used

at this level to provide increasingly intensive instruction with the idea of improving student performance at the middle school level.

Dennis, et al., (2011) initiated a study targeting engaging literacy practices in a middle school science classroom. The resulting report, *"I can read this!" Promoting Developmentally Responsive Literacy Practices in a Middle School Science Classroom* set out to show how engaging and interesting literacy practices in an eighth grade science classroom provided a framework that was used to meet the unique learning needs of adolescents in a middle school science classroom. It also showed the engagement, motivation, achievement and growth in the literacy of the students.

According to the researchers, the study took place over a six-week period during the spring semester of the 2005-2006 school year. Before the study was implemented, the teacher, like many other teachers, used the science textbook to cover the required content. He would also lecture and use worksheets and lab experiments. He admitted that a "hands-on" approach was the best way to teach, but he said that he found it difficult to give the students something that was so unstructured. As he was instructed in the new teaching method he agreed to use several texts that were written at various levels concerning weather. He implemented these new multi-level texts within the confines of the weather unit of his district content standards. Using small groups of three to four students, he put students into groups that were of similar abilities. In order to gain their interest, the teacher read them the book *Cloudy with a Chance of Meatballs,* by Judi Barrett (1982). After the reading he implemented different strategies, such as brainstorming and an A-B-C chart.

At the beginning of the project, many students continued to use their familiar textbook, but by the fourth day, the teacher noted that the students had completely stopped using the standard text and were finding that the multiple text options that were given to them were easier to read and were also more specific than their old text. The students became engaged and interested in the learning process as a result of this new way of learning.

The data that were collected were taken from interviews that the researcher did with the instructor. There were three interviews and each one was approximately 30 minutes long. The focus of the interviews was on the teacher's knowledge and feelings about using engaging literacy practices in the middle school science classroom. Another focus was on his thoughts about the use of these practices in the early stages of the study and how effective he felt the implementation was.

Analysis of the data used an inductive approach, which allowed the researcher to find certain elements in the data and generalize the connections between these elements. Identified were frames of analysis, or levels of specific data which were conceptual categories that would be examined and then made it possible to move on to the next step of analysis. The researcher then created domains in order to find categories by reading the data and recognizing certain semantic relationships.

It is important to note that these students became so much more interested in learning because of this RTI approach – engaging literacy practices. Even the struggling readers in his classroom were able to read and learn about weather. Dennis, et al., suggest that educators of young adolescents should consider rethinking who the struggling reader is – a student lacking necessary skills or a student who is disengaged from the teaching

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materials that are used. The way to alleviate some of the struggles a student faces is to offer engaging literacy across the curriculum. By doing so, the teacher is combining achievement in reading comprehension with motivation, providing a relevant, yet challenging curriculum that advances their cognitive development, helping to merge their life experiences, giving opportunity for them to explore their identity and a way to connect socially in the classroom. The result is an enjoyable and supportive classroom that is developmentally responsive. This study proved that students do learn when they are interested.

In the study by Vaughn, et al., (2010), *Response to Intervention for Middle School Students with Reading Difficulties: Effects of a Primary and Secondary Intervention,* the students who received the interventions provided by the researchers scored much higher than the students who received similar interventions on measures that included word attack, spelling, passage comprehension and phonemic decoding efficiency. Even though the results of this study were positive, they did not significantly change over the year that the interventions were being given. The students who received Tier 2 interventions performed better on several measures than the students who were in the comparison condition. Improvements were more obvious in certain subgroups of students and improvements proved to be small. There were two results that were substantiated, spelling in the smaller site and passage comprehension in the larger site, in which the additional instruction had an effect on the students' achievement. Otherwise, the gains seemed to be small and the results did not change much when they did receive additional instructional interventions. According to the researchers, the results from this particular study showed the goals of the study to be overly ambitious for the most part, trying to

close the gap between at-risk sixth-grade students who received Tier 2 intervention and those students who were not at risk at the beginning of the school year. It is, however, important to point out that though the gains were small, there were still improvements academically.

The researchers Fuchs, et al. (2010), have proposed a modified response to intervention model at the middle school level (and beyond) because they feel that the older students in the upper school levels have already experienced enough failure. This should be proof that they are struggling and in need of the intensive levels of intervention in the prevention program immediately without the usual evaluations that precede such a move. They believe, therefore, that the middle school students who are the most discrepant should be placed in the most intensive level of the RTI program immediately.

The goal of accountability and depth within the middle school RTI program is to assure that the teachers should have as their mission to reduce and eradicate the already existing academic deficits with which a student is plagued. At this point, the focus would be on monitoring the response to intervention. The researchers suggest that this is done in order to know when important academic goals have been achieved so that the students may be transitioned through the RTI process in the direction of the less intensive and more normalized levels in the system of prevention. This way of utilizing the response to intervention model at the middle school level and beyond introduces new opportunities to improve the outcomes of students' academic deficits, giving them a new pathway for growth and academic success.

For the most part, each response to intervention program studied was successful in helping the adolescent students with their reading and learning achievements. The reasons for this were many. In the study by Cantrell, et al., (2010), *The Impact of a Strategy-Based Intervention on the Comprehension and Strategy Use of Struggling Adolescent Readers* , the focus was to teach adolescent learners many kinds of strategies, including how to become self-regulated learners, helping them to know what kinds of strategies to use and when and how to use them. Due to long-term failure, interventions were developed to teach readers to use many kinds of strategies in order to become self-regulated learners who are able to determine what kinds of strategies to use and when and how to use them. These interventions that were used as part of the strategy training programs included a reciprocal teaching (Palinscar & Brown, 1984) program, *Informed Strategies from Learning* (Paris, Cross & Lipson, 1984; Paris & Jacobs, 1984; Paris & Oka, 1986), and *Transactional Strategies Instruction* (Brown, Pressley, Van Meter & Schuder, 1996; Pressley, El-Dinary, et al., 1992). These three different methods focused on different teaching strategies that proved to be successful with readers at different age levels, including adolescents.

According to Palinscar and Brown (1984), the reciprocal teaching strategy is used as a dialogue between students and teachers working together to understand the meaning of text. In entails four goals: prediction, question generation, summarization and clarification. The teacher sees these goals as a strategy that is used to promote comprehension of text and comprehension monitoring. When the students make a prediction, they are making a hypothesis about what the author will say next in the text

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they are reading. They must activate their relevant background knowledge in order to do this successfully. The next goal, question generating, gives the students an opportunity to create questions from the text that they just read. They can then engage in self-testing and learning how to ask and answer the questions they are creating. This is significant, as they are making up the questions from the text and not simply responding to a teacher asking the questions or reading the questions in their text.

The next goal, summarization, is a way of organizing what they have read and arranging the information to identify the most important things in the passage that they have read. The teacher continues to guide them in this process throughout the passage. In clarification, the students are taught to think about the meaning of what they have read. This is particularly important to the student with comprehension difficulties. The typical student who has problems with comprehension may completely leave out the concept of understanding their text altogether. In other words, they are so focused on saying the words correctly that they may not even be concerned that the passage does not make sense to them. As they are asked to clarify, they are forced to think about what the passage is saying and may be able to admit that they are having difficulty understanding and there are possible reasons why they are having these difficulties. They can then be taught how to restore meaning of the text they are reading and learn how to help themselves to understand what they are reading, such as through rereading and asking for help.

While the study mentioned in Cantrell's (2010) research could not be found, another article about *Transactional Strategies Instruction* was found, *The Road Not Yet Taken: A Transactional Strategies Approach to Comprehension Instruction* (Brown,

2008). This way of teaching reading is impressive. It links reading to thinking. Four

components of instruction are highlighted:

1. Comprehension strategy teaching

2. Shifting from teacher to student in the use of the strategy

3. The fact that group learning is so valuable

4. The sharing of ideas

Transactional Strategies Instruction (TSI) is an effective instructional approach that

teaches reading comprehension in a fun way and, most importantly, engages each student

in the classroom. It is a strategy that utilizes collaborative text discussions. All the

members of the group share the responsibility for using strategies to construct meaning

from text. It can be used with a whole class, a small group, or in one-on-one formats and

can be used in situations where the teacher is the guide or the students take turns being

the guides. The teachers as guides should slowly relinquish their role as guide to the

students and the students become the teacher. This strategy is based on the following

research-based strategies:

- ❖ A good reader is able to make connections and inferences using

  background knowledge;

- ❖ A good reader is able to predict what will happen next in a text;

- ❖ A good reader will be able to visualize the content of a text;

- ❖ A good reader is able to self-question when they find something is

  confusing or curious in the content;

- ❖ A good reader is able to summarize the important information and will be

  able to construct "gist" statements;

❖ A good reader is able to engage in problem-solving and clarifying

strategies.

TSI is grounded in the above theories and it is a strategy that helps students to learn how

to be active and independent readers. The strategies are taught in the context of real

reading experiences. The students are taught how to have actual discussions concerning

the texts that are being read by the class. The teacher will begin by contributing a greater

amount to the discussions and by modeling strategic reasoning, how the students should

be asking questions and what kinds of things they should be thinking about that are

related to the text. This process is known as the *Gradual Release of Responsibility Model*,

by Duke & Pearson (2002). As the teacher gives the students more responsibility, the

students begin to model for each other and they actually scaffold successful strategy use

for each other. This often takes years for the students to become expert readers and

improves as they continue to learn the process from year to year.

Regarding the instructional practices of the TSI teachers, the researcher explored

the affect that instructional differences had on students' learning and performance

between two groups. The students were assessed at the beginning and at the end of the

school year. The assessments they were given were an achievement test and a retelling

task. They were also engaged in a student interview and in late spring they participated in

a think-aloud activity. The findings of this study indicated that the TSI students did better

overall than the non-TSI students in the standardized test performance, their interpretive

abilities, and their knowledge and use of different strategies. The students were able to

work together to make sense of the text. They would each take turns as discussion

managers. The teacher would periodically cue the students to give evidence in support of

their claims. The students also learned to rely on each other as they collaborated with each other, the less able readers with the more capable readers, learning from each other how to make use of strategies. This is called the Collaborative Learning Dimension and provides the students with the tools they need to be able to think and speak meaningfully about the text, learning from each other as they do so.

Another important aspect, the "Interpretive Discussion Dimension," includes the concept of more discussion and less recitation. The idea is that the teacher stays away from teacher questioning, student responding and teacher evaluating, which are known to slow down interpretive and interesting discussion. Through these discussions the students learn how to use the strategies to understand meaning from text. In order to encourage interpretive discussion teachers tend to ask only one question and then only if the student that is reading the text does not respond automatically. The question asked is, "What are you thinking?" This question encourages the students to say what is on their mind regarding what they have read. The other students can respond in support of each other and to challenge each other. The idea is that as the students defend their claims, misconceptions have the tendency to resolve themselves. The teacher must strive to make sure that all of the students' views are respected by each other, which can promote interpretive discussion. Some guidelines from this particular teacher were set and followed from the beginning of the year: All students have the opportunity to participate without dominating; the reader will be the first to discuss after they have read; following a reader's interpretation, the others are allowed to give their ideas and input about the passage that was read; no one is ever considered right or wrong; reading time is also

considered a talking time; all students are required to participate. Teaching reading comprehension in this way will make your students independent readers.

These teaching strategies helped to engage students in higher-level thinking in order to enable them to construct meaning from text. They also taught students how to analyze their reading, use comprehension strategies, and recognize where, when and why strategies should be used. The important distinctions they made were to encourage self-initiated and self-strategy use and to help the students to develop metacognitive awareness of the tasks that they were trying to learn.

In the study, *The Effects of Tier 2 Literacy Instruction in 6th Grade: Toward the Development of a Response-To-Intervention Model in Middle School* (Graves, et al., 2011), the focus was on the decoding instruction, fluency building and reading comprehension with vocabulary instruction the significant finding was that the students in the treatment group gained an average of 10 words per minute (wpm) in 10 weeks due to decoding instruction and fluency-building instruction in oral reading fluency (ORF) making this a very effective program for these sixth graders. It was felt that the decoding instruction and fluency building instruction may have played an important role in the oral reading fluency of the students in the intervention. It was also felt that Tier 2 instruction, combined with the evidence-based Tier 1 interventions, had a significant impact on these sixth grade students. It should be noted also that 100% of the students in this study received free or reduced-price lunch.

The focus group included sixth graders in an economically disadvantaged middle school in an urban setting. This group was used to begin the process for Tier 1 and Tier 2 instruction for the struggling readers in the sixth grade. The teachers who taught Tier 1

formed guided reading groups and aligned the assignments to the reading levels of the students. They were specifically to give reading and writing assignments each week including intense practice in order to raise the test scores of the students. The students in this school had been designated as "low performing" by the state of California. All students in Tier 1 would receive English/Language Arts. The intervention students would also receive Tier 2 instruction.

A Tier 2 instruction was designed based on the reading levels of the participants. These students were sixth graders who were reading at the third-grade level or below. Materials were chosen that included evidence-based intensive instruction in reading that included phonemic awareness and decoding, reading comprehension, vocabulary development and oral reading fluency. The curricula that were used included Corrective Reading (Engelmann, et al., 1999), REWARDS (Archer, et al., 2002), Read Naturally (Inhot, et al., 2001) and Daybook (Spandel, et al., 2001). Teachers were also encouraged to teach vocabulary by giving definitions and providing visuals and deep-level meanings for the vocabulary with which the students were unfamiliar. Comprehension skills and improved vocabulary were also taught with the Daybooks strategies. The most significant result of this study was that there was a major statistical difference between the treatment groups and the control groups on the oral reading fluency for the students receiving the Tier 2 intervention. In the study by Fagella-Luby, et al. (2011), *RTI in a Middle School: Findings and Practical Implications of a Tier 2 Reading Comprehension Study* concerning the Experimental, Comparison and Sustained Silent Reading conditions, there were benefits of explicit instruction at Tier 2 level for the sixth graders, one of the reasons that the use of response to intervention instruction at the middle school

level worked. The evidence supported the behaviors of successful reading, which impacted comprehension due to the kind of instruction that was given. The fifth graders results, on the other hand, showed mixed support for the kind of instruction that was given. Since the sixth graders showed more improvement, it was suggested that it is possible that the needs of fifth- and sixth-graders were different when it comes to their struggles in reading. It was possible that the students receiving Tier 2 instruction in the fifth grade may need more intensified explicit instruction. In spite of these differences, there was evidence that supported instruction associated with reading success, making explicit instruction necessary to impact comprehension as well as continued reading practice.

In the study that was conducted by Vaughn, et al. (2010), *Response to Intervention for Middle School Students with Reading Difficulties: Effects of a Primary and Secondary Intervention,* students receiving Tier 2 intervention outperformed students in the comparison condition. Students from seven middle schools, including three schools that were from a large urban district and four schools from two medium-sized districts in a smaller city, participated in the study. The students were sixth graders who had difficulties with reading along with a random sample of readers who did not show any problems in the area of reading. The students that were excluded from participating in the study included those who were enrolled in an alternative class, such as life skills class; the performance levels of the students were at a second-grade level or lower in reading; they had a disability, such as blindness or deafness; or they had an individualized education plan (IEP) that did not allow them to participate in a reading intervention.

There was also a preliminary sample that included over 2000 fifth-grade students who had state test scores that made them eligible in the spring of 2005-2006. These students fell in either category of "struggling reader" or the "typical reader" (who did not show signs of struggles in reading). They were expected to attend one of the seven middle schools mentioned previously.

The measure used to assess the progress in decoding and spelling was the *Woodcock-Johnson III Tests of Achievement* (WJ-III; Woodcock, McGrew & Mather, 2001). Specifically, the subtests *Letter-Word Identification* and *Word Attack* were used to assess for word reading accuracy for both real words and pseudowords. The *Spelling* subtest was also given as a post-test.

For fluency the *Test of Word Reading Efficiency* (TOWRE; Torgesen, Wagner & Rashotte, 1999) was used to assess word lists fluency for both real words and pseudowords. The *AIMSweb Reading Maze* (Shinn & Shinn, 2002), which was a three-minute curriculum-based assessment for groups, was given at five time points. This was used to help the teachers make valid instructional decisions. Another test that was given to assess reading fluency was the *Test of Sentence Reading Efficiency* (TOSRE; Wagner, et al. 2010). The researchers also designed assessments for measuring fluency specifically for this study. The *Passage Fluency* (PF) included graded passages that were timed (one minute) and were designed to measure text reading fluency. The students were given this test, including a pretest and post-test five times throughout the year.

Another measure the researchers designed specifically for this study was the *Word List Fluency* (WLF). In this test the students were asked to read as many words as they could in one minute from three word lists that included different levels of difficulty.

This test was also given five times throughout the year and it also included a pretest and post-test.

To assess comprehension, the *Texas Assessment of Knowledge and Skills* (TAKS; Texas Education Agency, 2004) was used. Students read both expository and narrative passages and answered questions that corresponded to what they read. Also given to assess comprehension was the *Passage Comprehension* subtest of the *Group Reading Assessment and Diagnostic valuation* (GRADE; Williams, 2001). The students were asked to read a passage and respond to multiple-choice questions. Another measure used for comprehension was the WJ-III *Passage Comprehension* subtest, which is a cloze-based test where the students are asked to read a passage and fill in missing words.

The *Kaufman Brief Intelligence Test – 2* (Kaufman & Kaufman, 2004) was used as an intellectual screening assessment. It was used in this study for descriptive reasons. The subtest *Matrices* was given as a pretest and the *Verbal Knowledge* subtest was given as a post-test.

This study targeting middle school students who have reading difficulties is the first study to be conducted within the context of an RTI framework in which all of the students are provided instructional enhancements. For Tier 1, the content area teachers who served the sixth-grade students were given professional development which helped them enhance their ability to teach vocabulary, word reading, and comprehension. This helped the teachers to know how to effectively teach the students at the Tier 1 level. They learned strategies to teach their students regarding vocabulary, including decoding words, defining words, using words in a sentence. They also were taught how to teach their students to use graphic organizers. After their professional development at the beginning

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of the year they took what they learned to the classroom to teach their students at the Tier 1 level.

Tier 2 interventions were given from the time they began until the end of the year. This intervention included three phases, each phase of instruction varying in emphasis. In *Phase 1,* the focus of the intervention was on word study and fluency. This consisted of nearly 25 lessons that were taught in a seven- to eight-week period. Fluency was taught through the use of oral reading fluency (ORF) data and through the use of partner-reading, pairing higher and lower readers together. Their goal was to increase their fluency through daily repeated reading with their partner. *Word Study* was also taught, using the *REWARDS Intermediate* (Archer, et al., 2005) program. These lessons included strategies for decoding words that were multisyllabic. The students received instruction and practice in letter sounds, letter combinations, and affixes. They also received instruction and practice in applying strategies to decode multisyllabic words and learning how to spell these words as well. New vocabulary words were taught every day, focusing on meaning of words and providing examples of how to use or how not to use the words. Comprehension was also taught by asking questions (both literal and inferential) about what they had read. *Phase II* included even more of an emphasis in instruction and practice of vocabulary and comprehension, practice for word study and fluency, and practice for the strategies that the students learned in Phase I. This phase continued over 17 to 18 weeks and depended on students' progress. *Phase III* maintained the emphasis on vocabulary and comprehension and lasted 8 to 10 weeks. Word Study and Vocabulary were the same as in Phase II. In this phase, the teachers used the fluency, word reading activities and novel units that were developed by the researchers.

The students who received Tier 2 intervention outperformed students who were in the comparison condition on several tests, including word attack, spelling, comprehension, phonemic decoding efficiency. This was an indication of the effectiveness of this study. It was also noted that all the students in the classroom benefited from the training that was given to the teachers.

Changes in Academic Performance Overall

As a result of the response to intervention programs and strategies that were used in the above studies it is hoped and assumed that the effects of the interventions will have a lasting effect in the students' academic performance beginning at the middle school level and continuing throughout their lives. There is evidence in some of the studies that were reviewed that there were positive changes in the overall academic performance of the students in the programs.

For example, in the study, *"I can read this!"Promoting Developmentally Responsive Literacy Practices in a Middle School Science Classroom"* (Dennis, et al., 2011), some of the eighth grade students showed an interest in learning, which was measured through observation of how they could not stop talking with each other about what they had just learned, participated in class more, appeared to enjoy the learning process, and learned the science material well during the six-week study. In the study by Vaughn, et al. (2010), the indications were that Tier 2 instruction, combined with evidence-based Tier 1 interventions, had significant impact on students in the sixth grade. In the same study, decoding instruction and fluency building instruction may have played an important role in improvement of the oral reading fluency for the intervention students.

In the important study by Cantrell, et al. (2010), *The Impact of a Strategy-Based Intervention on the Comprehension and Strategy Use of Struggling Adolescent Readers,* all strategies proved to be successful with readers at different age levels, including adolescents. They engaged students in higher-level thinking to enable them to be able to construct meaning from text. The teachers were able to teach the students how to analyze reading, use comprehension strategies, recognize where, when, and why strategies should be used, and the interventions that they learned fostered self-initiation and self-strategy use. This study suggested that there was evidence to support instruction associated with reading success, making instruction necessary to impact comprehension and continued reading practice. This caused the overall performance of the students to be changed, causing them to have even more academic success and to be able to take control of their learning because they had learned how to know to analyze reading, use comprehension strategies, and recognize where, when, and why strategies should be used. Some of the findings, on the other hand, revealed positive as well as negative results. In the study by Vaughn, et al., (2010), the results showed that the goal of closing the gap between at-risk sixth graders receiving Tier 2 intervention and students who were not at risk in the beginning of the school year may not be practical and may, in fact, be unattainable. Some other concerns from this study showed that findings for the intervention students were positive, but did not change over the course of the year in any way, good or bad. In other words, the students' overall performance did not decline over the year. It should be noted, however, that their proficiency did increase in some of the domains. As was previously suggested, the students who received Tier 2 interventions outperformed students who

were in the comparison condition on word attack, spelling, comprehension, phonemic decoding efficiency. This was an indication of the effectiveness of this study.

Specifically, some of the control students in this study received secondary intervention by the schools that were unrelated to the study and none of the students in the comparison groups received the same interventions. There was also a lack of flexibility and movement for participating students between Tiers 2 and 3, which could have also been a limitation. The researchers were interested in looking at the effects of a Tier 1 intervention with and without a Tier 2 intervention. This would allow them to make clear causal claims about the interventions. If the students had been allowed to move between tiers, the researchers would have increased the number of groups in the study.

Caution

There are three assumptions in the elementary RTI framework that may not be applicable in the middle school and high school levels. First, in the elementary school screening is a requirement for identifying at-risk students before their academic deficits become evident. This is not needed at the middle school level, as the researchers noted that in the middle school and high school levels, the students' academic deficits are already well established. They suggest that it is easier to rely on teacher nomination and/or already existing assessment data, whether that data be the tests given by the teacher or the standardized tests, in order to identify those students who show signs of academic difficulties. It may be appropriate to create functional tutoring groups that include students with similar instructional needs, which can be done by gathering more assessment data or studying the existing data that is available. It may be even more

important to separate students whose academic deficits are so grave that they demand immediate referral to special education services from students who will likely succeed in secondary prevention.

Secondly, another problem that arises when a student gets to the middle school (and above) level is that deciding a student's responsiveness to less intensive levels of the system of prevention is required to identify students who are in need of more intensive services. Because of the fact that by the time the student is in middle school they have already accumulated academic deficits and these have become much more dramatic and severe as they have advanced through school. According to Vaughn, et al, (2010) the more serious academic problems that are associated with middle school and high school make many of the students resistant to the remedial interventions that are offered at the secondary prevention levels.

Thirdly, it is assumed that the nature of effective intervention is the same at every grade level. In actuality, it is more appropriate to suggest that adolescents need different emphases and strategies on instruction at the higher grade levels than students in the elementary grade levels. For example, in reading problems the younger reader may have difficulties that are associated with phonological processing problems, whereas the adolescent who presents with reading difficulties may show a more elaborate array of deficiencies, ranging from the area of word recognition to higher order skills in language deficits and metacognitive skills. Weaknesses in these areas have been said to be the cause of failure in the area of comprehension. This has been known to decrease a student's ability to use text to learn new vocabulary, obtain information and knowledge. It was observed that the traditional focus on strategy use and question/answer

assessments may not be appropriate for the adolescents who have grave knowledge and vocabulary deficits. Creativity and new innovation is required to help change the academic needs of adolescents that have serious and accumulated deficits academically. The same effective interventions should be delivered in a model that motivates and interests the adolescent, engaging the whole peer group in order to support its effectiveness.

The adolescent may experience difficulties acquiring new vocabulary, information and knowledge. The traditional strategies of the elementary aged learner may be inappropriate for the adolescent learner. What is needed to address the adolescents' learning deficits is innovation and motivation, as their learning deficits will be serious and across a wide range of skills and within any domain. Creativity is needed to help these students in the context of their peer groups. Targeting the peer groups will be the key to gain endorsement of the academic interventions. Without this peer-group support these programs may be ineffective.

It has also been suggested that the student in the elementary grade levels may have been able to succeed in their remediation of their learning problems to a certain extent as a result of the interventions they have been given. It is after they move on to more complicated learning that they begin to fall behind again, especially if they were taken out of special education because of their success in the lower grades. These students, when they reach the middle school grades, may begin to experience further learning problems due to the difficulty of the curriculum. New interventions for them are crucial to their success at the middle school level.

Another key point that was discovered throughout the research about the response to intervention approach is that it is not solely used as a special education eligibility tool, but rather is used as a data-based decision-making program to be used for all of the students within the school. This collection of data within the RTI model allows teachers to evaluate whether their instructional intervention is successful and effective.

One important advantage of the response to intervention method is that it is an appropriate learning approach for all students in the school and it begins in the general education classroom. It is a proactive approach that encompasses screening and progress monitoring, utilizing a continual procedure of collecting data and constant analysis and decision making on behalf of the students in order to assure their academic success. According to Johnson and Smith (2008), as a result of the RTI tiered levels of service delivery, up to 85% of all of the general education population should experience academic success at the Tier 1 level of intervention.

In a study conducted at the Cheyenne Mountain Junior High School, *Implementation of Response to Intervention at Middle School: Challenges and Potential Benefits* (Johnson & Smith, 2008), the reading, math, writing and science scores from the school-wide state testing were analyzed and the results showed that 80% of the students were meeting the standards required by the state of Colorado. It was discovered, however, that one method of teaching that could be improved in the school was the use of differentiated instruction. In this school there were over 120 students identified as not receiving any specialized help in their homework, assessments or instruction.

The main way of determining whether students are gaining from the instruction and intervention strategies is through the collection of data. In this way the teachers can analyze the evidence of a student's performance and this data collection will help the teachers make informed instructional determinations about what is happening in their classroom and what are the academic levels of their students. Progress monitoring, as this is called, is the best way to identify if a student is not achieving to the standards of the curriculum and of the state. It can help the teachers carefully plan interventions that are effective for the students to be successful in learning. Although this feature of the response to intervention process in the Cheyenne Mountain Junior High School was lacking, it remained a focus for professional development for the teachers to learn how better to utilize this component.

Tier 3 was used in the Cheyenne Mountain Junior High School in order to identify those students who were not making progress at the Tier 1 and 2 levels of the response to intervention program that had been implemented. A small group of students from the general education department were identified after failure to make progress at the first two tier levels. For one student in particular, consent was given by his/her parents to receive more intense intervention instruction by the special education teacher for a six-week period. At the end of this six-week instruction this student's progress was monitored and the team, along with the parents, decided that the student's progress was still not adequate based on his/her work and assessment data. The student was accepted into the special education program as a result. It was because of the RTI program that had been implemented in this school that this student was identified. The referral was made

even at the middle school level, using the response to intervention method as the referral method.

In the Cheyenne Mountain Junior High School, the teachers learned that the process of data collection and evaluation of performance at all instructional levels was crucial in their efforts of improving the instruction and implementing the interventions for the students. Because of the implementation of the response to intervention program and the development of their learning community becoming more proficient and qualified, the school made an impact on the level of instruction they were able to give to the students as they implemented their differentiated instructional program. They were also able to use the resources available to them more competently and they saw greater student progress, which led to a reduction in referrals to their special education program. In the Cheyenne Mountain Junior High School, the progress monitoring that they were able to accomplish, though still in its inception, was able to provide an unbiased way to identify the students' learning needs at the middle school level. It is important to note that the implementation of response to intervention at the middle school level will be a continual process of providing proper instructional approaches and interventions that are related to what the students are learning. It is important to provide continual professional development to those teachers who are involved with implementation of the program. This will assure improved achievement for all of the students in the school.

Another study, *CA District Uses RTI to Boost Achievement for All* (Samuels, 2011), which was done in a middle school in California, the Sanger Unified School District, used the response to intervention model and considered it a very important key to their successful academic performance. Up to the time of the onset of the study, it had

been one of the 98 lowest-achieving school districts in the state of California, stating that the district had not been able to make enough academic progress during the school year 2004-2005.

The district incorporates children with very high socio-economic needs, such as the fact that 76% are eligible for free and reduced-price lunch and 24% are English-language learners(ELL). ELL can go hand in hand with socio-economic need. They had not aligned their curriculum to the state standards in 2004, and as a result had a flawed system of professional development and no way to expand or to sustain the periodic times of improvement that may have appeared in a classroom or individual school. Since then, the district has experienced a dramatic change of events. According to Samuels, in only two years, the Sanger Unified School District has implemented a response to intervention program and with it has experienced much success in their program, allowing the district to cut down on special education referrals in their district. The district has credited RTI, among other initiatives, with improved performance on state tests. In 2004-2005, 35% of the students in the school were proficient or better in language arts and 44% were proficient or better in math. In 2010, the proficiency rates rose to 58% in language arts and 67% in math. The way that California measures its schools is on an "academic performance index," or API, which is an annual measurement of the performance of the students which includes the tests they take and the scores they receive. The states' testing has a beginning level of score points at 200 and its ending level is 1000. The targeted score for the students to achieve is 800 or more. In 2004, the Sanger Unified School District had an overall school-wide achievement score of 599. The state school-wide achievement score in 2010, after the implementation of the response to intervention

program, was 805. They attribute this successful change to the interventions and strategies that were taught district-wide through the response to intervention program that they had begun.

In Sanger, the response to intervention program was used to improve the educational component for the entire school district, encompassing both the general education population and those students with disabilities. They credit the RTI initiatives, along with others which they also implemented, namely the Explicit Direct Instruction initiative and the creation of professional learning communities, with its improved achievement on the state tests. For example, the results of the language arts tests in 2004-2005 were that only 35% of the students achieved proficiency in English/language arts and 44% were proficient in math. In 2010, these rates jumped to a 58% proficiency in English/language arts and a 67% proficiency in math.

District officials credit the response to intervention initiative throughout the district to cutting down on special education referrals at the middle school level as well. They feel that what they have accomplished is to create a support structure in the schools, making it easier for the students to achieve success rather than experience failure.

Setting goals for the students' achievement is crucial to the response to intervention process. Once this goal has been established and a graph originated to keep track of the goal, it can be easy to know whether the student is making enough progress to be able to show whether the intervention is working or not. In this way, the students who show improvement toward their goals would be able to continue with the instructional change in their current school placement, hopefully to be able to move forward in their academic success.

Summary

Before Response to intervention was developed the "discrepancy" approach, which is the traditional process of identifying students who have learning problems such as specific learning disabilities and reading disabilities, was used to identify students who may have a specific learning disability. In 1983, RTI was proposed as a result of the publication, *A Nation at Risk.* The idea was to find these struggling learners as early as possible. From this article pointing to the problem of students experiencing learning problems in our schools, the federal government began to focus on how to improve student performance through changes made in the public school systems around the country. From this focus, amendments were made to the federal law, *Individuals with Disabilities Education Act (IDEA)*and this began the emphasis we have on improving literacy in our schools. The federal government has endorsed the RTI initiative in the United States through the Striving Readers Act of 2007. This was the beginning of RTI in our schools throughout the United States.

This review of literature has explored the development of several RTI programs at the middle school level. Some of the areas that were discussed included the impact and effectiveness of different strategies on adolescent struggling readers' reading comprehension and fluency, the implementation of interventions with the adolescent student with reading difficulties, to include oral reading fluency, decoding, comprehension, vocabulary, phonological awareness, etc., the exploration of the development of RTI programs at the middle school level, how to keep the adolescent student engaged in learning and motivated to continue to learn and the achievement of the adolescent struggling learner.

The effectiveness of these RTI programs was also explored. For the most part, each response to intervention program studied was successful in helping the adolescent students with their reading and learning achievements. Changes in academic performance overall were noted. As a result of the response to intervention programs and strategies that were used in the studies it is hoped that the effects of the interventions will have a lasting effect in the students' academic performance beginning at the middle school level and continuing throughout their lives. There is evidence in the studies that were reviewed for positive changes in the overall academic performance of the students in the programs.

A caution was also given by Fuchs, et al. (2010) regarding the differences in RTI in the middle school as opposed to the elementary school. There are three assumptions in the elementary RTI framework that may not be applicable in the middle school and high school levels. First, in the elementary school screening is a requirement for identifying at-risk students before their academic deficits become evident. Secondly, another problem that arises when a student gets to the middle school (and above) level is that deciding a student's responsiveness to less intensive levels of the system of prevention is required to identify students who are in need of more intensive services. Thirdly, it is assumed that the nature of effective intervention is the same at every grade level. The bottom line is that RTI should be approached at the middle school level in a different way than at the elementary school level.

Referral rates were also discussed. A key point that was discovered throughout the research about the response to intervention approach is that it is not only used as a special education eligibility tool, but is also used as a data-based decision-making program to be used for all of the students within the school. This collection of data within

the RTI model allows teachers to evaluate whether their instructional intervention is successful and effective.

There was evidence to suggest that credit should go to the response to intervention initiative throughout several of the schools in this review, cutting down on special education referrals at the middle school level. The feeling is mutual among many of the schools that what they have accomplished is to create a support structure in the schools, making it easier for the students to achieve success rather than experience failure.

Chapter 3
Methodology

Subjects

     The focus of this study was to determine whether the response to intervention (RTI) program is effective in the middle school general education population, from sixth grade to eighth grade or older?. The following aspects were investigated: referrals to special education, report card grades, response of the students in the general education classroom to the interventions and strategies to which they were exposed.

     The study included two schools in an urban New Jersey school district. The District Factor Group (DFG) for the school district that is the object of this study is "A," which is the lowest socioeconomic status (SES) category in the state. The DFG gives the combined statistics concerning the SES of the school districts in New Jersey. One of the defining factors in determining the SES of a neighborhood school is the ability of the family to pay for their lunch, to be eligible for a reduced lunch, or to be eligible for a free lunch, based on their income. In Figure 1 a bar graph shows the number of free lunches given in each school, the reduced lunches, and the paid lunches. It also indicates the enrollment of each school.

     In School 1, there are 411 students enrolled in the middle school. The number of students receiving a free lunch is 394, the number of students receiving a reduced lunch is seven, and the number of students who pay for their lunch in full is 10. In School 2, there are 519 students enrolled. This is a Pre-K through Eighth-Grade school. The number of students receiving a free lunch is 489, the number of students receiving a reduced lunch is 10, and the number of students who pay for their lunch in full is 20.
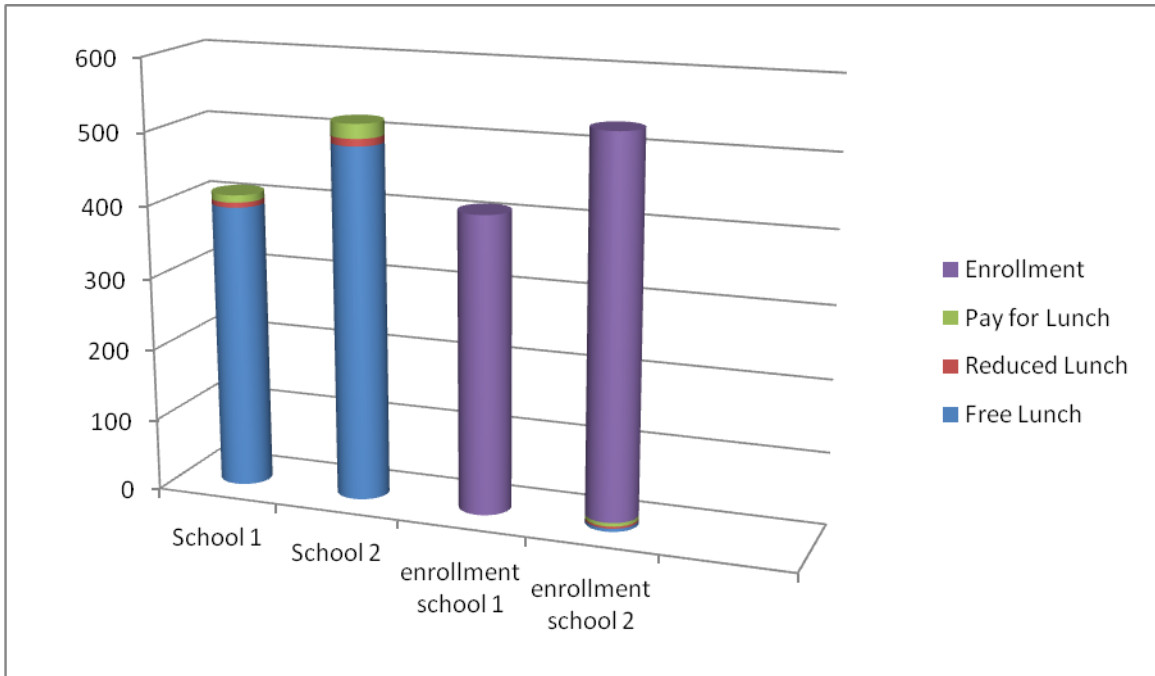
Figure 1 - Socioeconomic Status of Two Urban Schools as Seen in Free or Reduced-Price Lunch Program

Regarding what was incorporated in the study, in the first school, a language arts class was studied. The class is a seventh-grade class that is made up of 12 and 13-year-old Hispanic (51%) and African American (49%) male and female students. There are five males and 12 females in the class. Ms. A is the sole teacher of this language arts class, which has 17 students.

In the second school, an RTI program had been established last year and it is in its second year. This school is an inner city school that houses grades Pre-K through Eighth Grade. Even though the RTI program begins in first grade, for this research project, one eighth grade math class is being studied. The students are 12 to 14 years old and the percentages of ethnicity in the classroom are African American (75%), Hispanic (23%) and Caucasian (2%). We didn't know the ethnic breakdown of students in "School 1"?

There are 20 students in the class. There is a math teacher, a co-teacher and an RTI teacher in the room to help with extra instruction. The co-teacher and the RTI teacher are assigned to specific students who need extra assistance and instruction. The math teacher also walks around the room helping the students as they are doing their practice work after the direct instruction has taken place. About six students in the classroom are in special education. The remainder of the students is in regular education and all are receiving the same interventions.

The RTI model used in this class is the Protocol Model, as suggested by Margaret Searle in her book *What Every School Leader Needs to Know About RTI.* This model suggests particular interventions for the students who display similar problems and fall below the district-wide benchmark. The interventions are based on research that is scientifically validated and which makes up the only intervention plan that is used to remediate the learning problems. Ms. A is utilizing the Tier One assessments, which are *Learnia* pretests, Curriculum Based Measures and teacher-made assessments. The New Jersey Edition of *Learnia* is a classroom assessment published by *Scholastic* that is designed to support the work of New Jersey's teachers and the students' learning.

The Tier Two interventions include *Read 180, Elements of Literature* and *Spring Board. Read 180* is a reading program published by *Scholastic* and is used to instruct students who are behind in reading, using curriculum, assessment and adaptive technology (computer) to improve reading achievement of students in grades 4-12+. *Springboard* is also published by *Scholastic* and is designed to give students and instructors the opportunity to visit online course sites for further experiences beyond the classroom to include collaboration, interaction, teaching and learning.

As part of Tier Two, progress monitoring assessments, posttests, and teacher-made assessments are utilized in order to track progress. The students spend 84 minutes a day, four days a week in the RTI class. This begins with large-group direct instruction, which is then broken down into small group instruction and discussion and one-on-one computerized instruction, where the students use the software associated with the intervention to learn through practice, games, and other programming provided. If at any time the students need assistance while on the computer they can ask for help and Ms. A will help them with their questions. For example, the students begin in *Springboard,* where they are given an assignment to complete. This takes approximately 20 minutes. Then they begin using the *Read 180* intervention. Ms. A will begin at a point in the text book where the class ended the day before. This is an ongoing story which the students continue to work on from day to day. The whole class spends about 20 minutes in discussion of the story and answering questions that are given in the book about the story. This helps them with comprehension, working memory, and retelling of the main ideas in the story. They also have to write down answers to questions, some of which are in essay form so that they learn how to write elements of the story in their own words.

The class is then broken down into three stations: one small group of about four to five students (station one), individual work on the computers (station two), and individual reading time, related to the story they are studying (station 3). After about 20 minutes, each of the groups rotates to the next station.

In the second classroom, the intervention that is being used is called *Prentice Hall Mathematics: Algebra Readiness,* and includes a textbook and a workbook by Prentice Hall. At the beginning of the class the math teacher has the students come in and work on

some problems that are on the smart board. She then teaches the specifics of the lesson

(i.e. Reflection of X and Y axis). This takes approximately 20 to 30 minutes. During the

practice time the RTI teacher clarifies the lesson, giving more examples and explaining

the material to each individual student until they can understand the material and how to

successfully complete the problems in the workbook.

After the workbook practice was complete, the students were given the NetBooks

and they were then able to go online for practice on the web. Specifically, the students

went onto *FASTT Math* and *Fraction Nation.* The interventions for math that they used

on the NetBooks included *FASTT Math* and *Fraction Nation.* The assessments used for

progress monitoring were Curriculum Based Measures from the Prentice Hall math book

and teacher observation. *Learnia* was used to show progress periodically and *Success*

Tracker was used to show each student's rate of success in the program.

<u>Development of Intervention and Materials</u>

The intervention techniques used by the teachers included the following strategies

throughout the course of the research:

Table 1: Materials and Purposes

Teacher	Intervention/Progress Monitoring Used	Purpose
School 1: Ms. A	Intervention: Read 180	To instruct students who are behind in reading, using curriculum, assessment and adaptive technology (computer) to improve reading achievement of students in grades 4-12+.
School 1: Ms. A	Intervention: Elements of Literature	To instruct students in how to write a proper essay using the elements of literature: characters, protagonist, antagonist, conflict, foreshadowing (what comes next), setting, climax and point of view.

School 1: Ms. A	Intervention: Spring Board	To give students and instructors the opportunity to visit online course sites for further experiences beyond the classroom to include collaboration, interaction, teaching and learning.
School 1: Ms. A	Intervention: System 44	Breakthrough foundational reading and phonics intervention technology program for challenged readers in grades 3 and above. Motivating adaptive technology and explicit research-based instruction from *Read 180*.
School 2: Ms. B	Intervention: Prentice Hall Mathematics: Algebra Readiness	To teach and provide practice for algebraic expressions and integers; solving one-step equations and inequalities; decimals and equations; factors, fractions, and exponents; operations with fractions; ratios, proportions, and percents; linear functions and graphing; spatial thinking; area and volume; irrational numbers and nonlinear functions; data analysis.
School 2: Ms. B	Intervention: FASTT Math	This program is designed to help all students develop fluency with basic math facts.
School 2: Ms. B	Intervention: Fraction Nation	To teach fractions and decimals, two of the most difficult concepts to teach and learn. It is designed to develop the critical foundations of fraction fluency, conceptual understanding and procedural knowledge. Fraction Nation guides students on a journey through 64 online lessons to build a strong foundation in fractions and decimals in 15-minute lessons.
School 1: Ms. A School 2: Ms. B	Progress Monitoring: Learnia	Assessment: Pretest , Mid-Year and Posttest. The New Jersey Edition of Learnia is a classroom assessment that is designed to support the work of New Jersey's teachers and the students' learning.
School 2: Ms. B	Progress Monitoring: Success Tracker	To track data regarding individual students' grades for each test that the student takes and to monitor their progress

School 1: Ms. A	Progress Monitoring: SAM Comprehension Skills Grouping Report	Used to graph progress of individual students.
School 1: Ms. A	Progress Monitoring: SAM Growth Report	Used to graph growth in lexiles for each individual student.

Read 180 was used in each classroom school to instruct the struggling readers in general education, especially those whose reading was two years below grade level or more. This intervention utilizes curriculum, instruction and adaptive technology, individualizing instruction for students by way of 1:1 and small group instruction with the teacher, small group cooperative interaction and computer software programs for each individual student. It can be used with regular education students as well as special education students.

Elements of Literature is a program that teaches about the different elements that are needed to write a good essay. These include characters, protagonist, antagonist, conflict, foreshadowing (what comes next), setting, climax and point of view.

Springboard is a learning environment that provides opportunities for students and instructors to extend learning experiences beyond the classroom via online course sites. It provides many features that support collaboration, interaction, teaching and learning.

System 44 is a breakthrough foundational reading and phonics intervention technology program for challenged readers in grades 3 and above. It includes motivating adaptive technology and explicit research-based instruction from *Read 180.*

Prentice Hall Mathematics: Algebra Readiness includes a textbook and a workbook by Prentice Hall. It is a book that teaches algebra and includes practice sheets to go along with each lesson that is being taught. *FASTT Math* is a research-validated math intervention using Fluency and Automaticity through Systematic Teaching with Technology (FASTT) to help students to develop fluency with basic math facts. Students may access these strategies online through the Scholastic.com/math-fact-fluency website. *FASTT Math* assures that all students build the math fluency and confidence in mathematics that they will need to learn the higher-order math skills they will use for a lifetime.

Fraction Nation, also from *Scholastic,* is an intervention that targets fractions and decimals, which are two of the most difficult concepts to teach and learn. This computer program is designed to develop the most important foundations of fraction fluency (conceptual understanding and procedural knowledge). Fraction Nation teaches fraction fluency through explicit instruction, extensive practice, and continual assessments. It takes students on a journey through 64 online lessons and helps them to build a strong foundation in fractions and decimals in 15-minute lessons.

Learnia is a Pearson Report which was adopted by many school districts in New Jersey to improve the New Jersey State Assessment system. It is used as the ultimate? assessment process throughout both schools to evaluate the students and monitor their progress throughout the year. It is given as a progress monitoring assessment five times throughout the year: at the beginning of the year as a pretest, three times in the middle of the year to monitor student progress and toward the end of the year as a posttest. It is designed to support the work of New Jersey's teachers and the students' learning.

Success Tracker was another way that the second school kept track of the progress of the students. Basically, it is a spreadsheet with data on it regarding individual grades reported for each test that the student takes.

SAM Comprehension Skills Grouping Report is an instructional planning report from the *Read 180* intervention by Scholastic. It is used to graph the scores of each student in the different categories, such as *Drawing Conclusions, Compare and Contrast, Sequencing,* etc.

SAM Growth Report is used to chart the growth of each student. Its purpose is to identify the progress of each student.

Procedure

I conducted observations of two classes, one class from each of the schools I studied. The first class, from the first school, was a seventh-grade language arts class. The teacher, Ms. A was the only instructor in this class. I was able to observe this class three times during the course of the study. I went into the classroom and watched the teacher interact with the students in the large group setting, the small group settings and one-on-one, helping them with different aspects of their reading program. I followed along in the text book they were studying, which was *Reading 180.* I talked with the teacher about what she was doing and what materials she was using and how these materials were making an impact on the students. I also spoke with some of the students as to what they were learning. I wrote down notes about what I saw, what the teacher said, and what the students were learning.

The second class, in the second school, was an eighth-grade algebra class. The teacher gave the entire class direct instruction and the co-teacher and RTI teacher helped certain students. I was able to observe this class three times during the course of the study as well.

I also conducted interviews with each teacher from each class and with the math and literacy coaches in the second school. I met with the math coach two times and with the literacy coach one time. As part of the interviews the teachers and the math and literacy coaches answered the following questions.

Table 2: Survey for Teachers and Coaches

SURVEY FOR TEACHERS AND COACHES
Part One
1. How much time do you spend with your RTI program throughout the day?
2. Do you need help/have enough help to implement your program?
3. How many students are in the class? What is the grade level of the class? What is the age range of the class?
4. What are the percentages of the different ethnicities in your class?
Part Two
5. What kinds of strategies and interventions are you implementing to make your RTI program work?
6. What is the name of the interventions that you are using?
7. Please explain how the RTI model works in your classroom.
8. What is your ultimate goal for improvement?
Part Three
9. How does your RTI program help your students stay out of Special Education? Is your RTI program working to keep the students in the regular classroom?
10. If your RTI program is not working to keep the students in the regular classroom, what do you believe are the reasons why?
11. How effective do you believe your RTI strategies and interventions have been?
12. What are the good/bad outcomes that you have seen regarding your students as a result of your RTI program?
Part Four
13. How are you measuring data in your classroom?
14. Have your students' grades improved after using the strategies and interventions? If so, how?

15. What is the percentage of students in your classroom that have been able to complete your RTI program?
16. What is the percentage of students in your classroom that have improved their grade so much as to help them to get back on their grade level, if they were falling behind, making Tier 2 unnecessary?
17. What percentage of students will go onto Tier 3, which is more intensive training or referral to Special Education?

The survey is a snapshot of what kind of information was being sought in this study. Basically, the intent was to see if the RTI program would be successful at the middle school grade level. The kinds of interventions, the amount of time spent working on the interventions each day, the physical aspect, such as group size, whether there were any improvements in grades, whether the referral rate to special education was lowered, these were all studied to see if there was a significant factor in helping the students at the middle school level who were struggling in their academics.

The way the progress of each student was monitored was also studied through such programs as *Learnia.* The data of each student's progress was kept on *Success Tracke*r. Data that has been kept regarding the students' socioeconomic status by the *School Base Youth Program* were used to determine the students' needs. The *School Base Youth Program* is a program in the inner city schools that helps children who are in crisis with their counseling needs and any problems that may arise in their lives. The Language Arts program, IRLA, is used to support individual activities to bring the students' academic needs to proficiency. All data will be presented in both narrative and graph or chart form in Chapter 4, *Discussion,* and recommendations will be given based on what was found to work or not work in the RTI program at the middle school level.

Chapter 4
Results

Summary

In this descriptive study, two middle school response to intervention (RTI) classrooms, each in a different school in an inner city urban school district, were chosen to see if the RTI programs were helping struggling readers at the middle school level. The research question to be answered was:

Can the implementation of an RTI program help struggling readers in sixth through eighth grades to improve their reading and math skills?

In the case of these two RTI classrooms, the first classroom was studying language arts, which included reading, and the second classroom was studying algebra, which included reading word problems. The study consisted of observations of the classes four different times for each class, interaction with the teachers, the literacy coach, math coach, and students. In addition, there was a review of data, including report card grades, progress monitoring data as discussed in Chapter 3, and data from the New Jersey Department of Education.

Results

All results will be displayed in a table format. The data provided are the results of the learning that the students have experienced during the language arts and math interventions they were given, which were part of the classroom experience during the school day and excluded any non-academic classes such as homeroom, lunch or special classes. There is also data from the teacher survey. Tables 3 to 6 show the data from the language arts class. Table 7 shows the data for the math class and Tables 8 to 11 show the

data that was provided from the teachers and professional staff as a result of the Teacher

Survey.

Table 3: Growth Report on *Read 180 for Language Arts Class*

Students Gr. 7	First Test In Selected Time Period		Final Test In Selected Time Period		Growth In Lexiles	Bar Graph
	Lexiles	Date	Lexiles	Date		
1	952	11/22/11	1132	1/5/12	180	
2	682	11/22/11	846	1/9/12	164	
3	577	11/22/11	671	1/5/12	94	
4	134	11/22/11	224	1/5/12	90	
5	484	11/22/11	528	1/9/12	44	
6	650	11/22/11	676	1/5/12	26	
7	1275	11/22/11	1280	1/5/12	5	
8	839	11/22/11	764	1/26/12	(-75)	
9	503	11/22/11	439	1/5/12	(-64)	
10	834	11/21/11	828	1/5/12	(-6)	
11	837	11/22/11	789	1/9/12	(-48)	
12	611	11/21/11	607	1/5/12	(-4)	
13	846	11/22/11	842	1/9/12	(-4)	
14	938	11/22/11	900	2/1/12	(-38)	
15	449	11/22/11	426	1/30/12	(-23)	
16	520	11/22/11	505	2/1/12	(-15)	
17	860	11/21/11	859	1/5/12	(-1)	
Class Mean of Sum Totals	705		724	Growth of Class	19	
Number of Student s Showing Improvement: 7					Average Student Improvement in Lexiles: 86	

The first seven students showed improvement in their reading, resulting in an average student improvement of 86 in growth in lexiles in reading overall. However, ten students did not improve. The mean improvement for the class was 19 lexiles.

Table 4: Comprehension Skills Grouping Report, Group 1, *Read 180*

School 1 – Ms. A's Language Arts Class – Comprehension Skills Grouping Report of *Read 180* Time Period: 9/7/11 – 6/19/11			
Comprehension Skill	Student	Level	**DRAWING CONCLUSIONS SCORE – GROUP 1**
Reteach: Drawing Conclusions	9	2	38% ██████████
	15	2	38% ██████████
	2	3	50% ██████████
	11	4	50% ██████████
	17	4	50% ██████████
	7	4	50% ██████████
Average student improvement			46% ██████████

Table 4 shows the scores for Group 1, which was studying drawing conclusions. The average improvement of this group of six students overall was at 46%. This included three different levels (Level 2, Level 3, and Level 4). The two students in Level 2 both improved by 38%, whereas all of the other students improved by 50%.

Table 5 shows the scores for Group 2, which was studying *Sequencing*. The average improvement in this group of five students was at 47%. There were also three different levels in this group (Level 2, Level 3, and Level 4). The student in Level 2 improved by 50%, the student in Level 3 improved by 60%, and the three students in Level 4 improved by 25%, 50%, and 50%, respectively.

Table 5: Comprehension Skills Grouping Report, Group 2, *Read 180*

School 1 – Ms. A's Language Arts Class – Comprehension Skills Grouping Report of *Read 180* Time Period: 9/7/11 – 6/19/11			
Comprehension Skill	Student	Level	**SEQUENCING SCORE – GROUP 2**
Reteach: Sequencing	1	4	25% ███▐░░░░░░░░
	5	2	50% █████░░░░░
	10	4	50% █████░░░░░
	8	4	50% █████░░░░░
	12	3	60% █████░░░░
Average student improvement			47% █████▌░░░░░

Table 6 shows the scores for Group 3, which was studying *Compare and Contrast.* The average improvement shown in this group of three students was 71%. There were three levels in this group. The student at Level 2 showed 100% improvement, the student at Level 3 showed 88% improvement, and the student at Level 4 showed 25% improvement.

Table 6: Comprehension Skills Grouping Report, Group 3, *Read 180*

School 1 – Ms. A's Language Arts Class – Comprehension Skills Grouping Report of *Read 180* Time Period: 9/7/11 – 6/19/11			
Comprehension Skill	Student	Level	**COMPARE AND CONTRAST SCORE – GROUP 3**
Reteach: Compare and Contrast	3	2	100% ██████████
	6	3	88% █████████░
	13	4	25% ███▐░░░░░░
Average student improvement			71% ████████▐░░

Math Class Data:

Table 7: Math 8 Gradebook Spreadsheet Report, MP 1 & 2, 2011-2012

School 2 – Ms. B's Gradebook Spreadsheet Report				
Student	MP 1 Average	MP 1 Grade	MP 2 Average	MP 2 Grade
1	87.8	B	83.1	B
2	79.5	C	87.2	B
3	78.3	C	79.0	C
4	91.1	B	93.2	A
5	74.4	C	73.6	C
6	76.8	C	76.7	C
7	91.3	B	84.1	B
8	90.6	B	82.7	B
9	82.6	B	83.9	B
10	72.3	D	65.1	D
11	91.4	B	94.0	A
12	70.6	D	73.9	C
13	76.8	C	87.4	B
14	75.7	C	71.3	D
Class Average	81.3	C	81.0	C

Table 7 gives comparison results of the Math class in School 2. As can be seen, overall there was not much difference between the two marking periods, although some of the students individually did improve slightly from one marking period to the next. For example, Student 2 improved from a *C* to a *B*, with the average for that student being 79.5 for marking period 1 and 87.2 for marking period 2.

In other instances some of the students actually decreased in their average between the marking periods. Student 14 had an average of 75.7, which was a *C* for marking period 1 and an average of 71.3 for MP 2, which was a *D*. The class average for

each marking period basically stayed the same with the first marking period average being 81.3 and the second marking period average being 81.0. This actually showed a slight decrease between marking period 1 and marking period 2 by 0.3 percent. This result does not show an overall improvement of the class, but does show some improvement in individual students.

Results of Survey for Teachers and Coaches:

Table 8: Part One of Teacher/Coaches Survey

Survey Questions (1-4):	Ms. A	Ms. B	Literacy Coach	Math Coach
Time spent in RTI program each day	84 mins. 4 days / week	Daily – every period	N/A	20 to 30 minutes each class
Has assistance implementing RTI program	No	Yes	Yes	N/A
Number of students in class	17	20	N/A	N/A
Grade level of class	7th Grade	8th Grade	N/A	N/A
Age range of students in class	12 to 13 years old	12 to 14 years old	N/A	N/A
Percentages of ethnicities	Not given	Af. Am. – 75% Hisp. – 23% White – 2%		

NOTE: N/A = No Answer

It should be pointed out that the literacy coach and the math coach professional staff? and, therefore, were answering the questions based on what they could see in the classes they managed as opposed to actually being the teacher in the classroom. For this reason they were not able to answer some of the questions as easily as were the teachers.

There was more consistency with the RTI program in one class than in the other class. The Literacy and Math Coaches were from School 2 and only spoke for this school's program.

Table 9: Part Two of Teacher/Coaches Survey

Survey Questions (5-8):	Ms. A	Ms. B	Literacy Coach	Math Coach
Kinds of interventions implemented	Whole group instruction: Language Arts	Whole group instruction: Math	Data from School Base Youth Program	Whole group instruction
	small groups	small group instruction		small group instruction
	technology	student practice		
	reading skills test	worksheets for students		
	individual study: reading test generates worksheet	math skills test		
Name of interventions	*Read 180; Springboard; System 44*	*Prentice Hall Mathematics: Algebra Readiness; FASTT Math; Fraction Nation*	*IRLA; Read 180; Learnia; Success Tracker*	*FASTT Math; Fraction Nation; Net Books; Learnia; Success Tracker*
How RTI model works in class	Whole group instruction -teach skills; small group rotations: technology / independent reading; small group instruction for in-depth study of story & elements	Whole group instruction to introduce skills; small group instruction	Classroom teacher identifies students; RTI teacher comes into class to work with these students	Classroom teacher identifies the students; RTI teacher comes into class to work with these students
Goal for student improvement	Raise at least 1 grade level in reading; Reading enjoyment	Students to be proficient in NJAsk achievement test	At Tier 1 – no need for RTI – students on grade level	To bring students up to their grade level & to pass NJAsk

Table 10: Part Three of Teacher/Coaches Survey

Survey Questions (9-12):	Ms. A	Ms. B	Literacy Coach	Math Coach
How does RTI keep students out of special education?	Students motivated to do work due to consistency & constancy of program.	Small group instruction & homogeneous grouping	Less referrals to special education	The students do not fall behind because of the help they are getting
If not helping to keep students in regular ed classroom, what are some of the reasons?	It is working for all but one student, who is at a lower level and needs more simplified interventions.	The RTI teacher is constantly taken out of the classroom and being reassigned to other classes.	Lack of RTI teachers.	It is helping to keep students in the regular ed classroom. Behavior is much better.
Effectiveness of RTI interventions	Very	Not always effective due to constant teacher reassignments	Moderately – there is a lack of RTI teachers	Very do-able – excellent program of 1:1 / small groups
Good outcomes of RTI program	Students: eager to learn & to read; love to come to small group; like computer work; work together	1:1 instruction	N/A	Growth, improvement in basic computation without calculator
Bad outcomes of RTI program	Students: face resistance in separating from friends; difficulty becoming acclimated to work with others at beginning; bad attitudes/moods	The model should have been applied since first grade; RTI teachers have not received adequate training	N/A	Students struggle with reading computations and problem solving using tables, etc.

N/A = No Answer

Table 11: Part 4 of Teacher/Coaches Survey

Survey Questions (13-17):	Ms. A	Ms. B	Literacy Coach	Math Coach
How are you measuring data in your classroom?	Through progress monitoring programs such as *Learnia; SAM* by *Scholastic*; skill tests	*Learnia* scores and *NJAsk* scores	Various assessments	N/A
Have your students' grades improved after using the RTI interventions?	In most cases, yes. Some are not good test-takers. I see a lot of good verbal feedback from the students.	Some have improved … *Learnia* scores are still marginal.	N/A (Current data not available)	Yes, they are getting better.
What percentage of students have completed RTI program?	1st MP – 100% 2nd MP – 98% (2 failed – 1 referred to I&RS Team)	0%	Do not know	N/A
Percentage of students that have improved their grade enough to get them back on their grade level, making Tier 2 unnecessary	one has advanced from not be on grade level; one shows improvement by 90% lexile growth	2%	Very low (Current data not available)	80%
Percentage of students that go onto Tier 3	5.8%	N/A	Data not available	Up to 16%

N/A = No Answer

The above tables show the data from the RTI programming in the two schools studied. These data results will be discussed in the following chapter.

Chapter 5
Discussion

<u>Review</u>

In this study the effects of a response to intervention (RTI) program for middle

school students with reading and math difficulties in two urban schools of an inner city

school district was described. There were two classes, one in each school, that were

studied and observed. The class in School 1 was a language arts class and had an

enrollment of 17 students and the class in School 2 was a math class, with 20 students

enrolled. The classes were each observed four times, the teachers were interviewed and

each filled out an RTI program teacher survey. There was also a literacy coach and a

math coach in School 2, both of whom were interviewed and who also took the RTI

program teacher survey.

RTI is an early intervention program to identify struggling learners who may be

referred for special education at the elementary school level. It uses many kinds of

strategies to identify students who struggle academically and who have problems with

reading and other academic problems, including reading disabilities, learning disabilities

and math disabilities. The focus of this study was to determine if RTI is effective with

students at the middle school level who struggled academically in the areas of reading

and math. Initially the study started out with determining the effectiveness of reading, but

then it became apparent that math was an area where struggling readers may have

problems as well. If they struggled in reading, then their math may be affected, especially

in the area of word problems or in just the fact that the student would not be able to read

the directions concerning the math problems. The fact that in School 2 there was only a math RTI class at the middle school level was another reason that math was included in the study.

Previous research has indicated that there was room for RTI success at the middle school level (Graves, et al., (2011), Cantrell, et al., (2010), Faggella-Luby, et al., (2011)). Before RTI was developed, the "discrepancy" approach, which is the traditional process of identifying students who have learning problems such as specific learning disabilities and reading disabilities, was used to identify students who may have a specific learning disability. This approach says that the struggling learner must "wait to fail" before they are identified as a student eligible for special education. They may be given a diagnosis of "specific learning disability" or "reading disability" or some other disability. Their IQ testing will have shown that they are intellectually able to succeed educationally, but their academic evaluation shows that they are at-risk for failing in the areas of reading, math and/or writing. This is called the "wait to fail" approach or the "discrepancy" approach because their IQ, which was average, did not match their learning ability.

Secondly, the federal government showed more interest in RTI when they endorsed the *Striving Readers Act.* This bill came from the *Striving Readers Program,* which was implemented in the middle and high schools of eight sites and included six large school districts that were part of a group of multiple rural districts. It also included one statewide education system for students in a juvenile justice system. The components that were targeted included students reading two or more grade levels behind. Literacy instruction required teachers in core subjects to teach literacy skills specific to their core subject for all of their students. The program took two years to complete. Thus the federal

government authorized the *Striving Readers Act of 2007*. As stated in Chapter Two, its proposed purpose was to improve middle and high school achievement rates and high school graduation and college readiness by establishing literacy initiatives.

Previous research has found that many school districts are successfully using RTI with the older adolescent. For example, Vaughn, et al., (2010), found that students who received the interventions provided by the researchers scored much higher than the students who received similar interventions on measures that included word attack, spelling, passage comprehension and phonemic decoding efficiency.

Fuchs et al. (2010) have proposed a modified response to intervention model at the middle school level because they feel that the older students in the upper school levels have already experienced enough failure. This is considered to be proof that these students are struggling and in need of the intensive levels of intervention in the prevention program immediately without the usual evaluations that precede such a move.

The current study hypothesized that referral rates will decrease and their grades and academic performance will improve as the students in the middle school population will be able to learn how to read as a result of the RTI interventions that they are given. The results indicate that this seemed to be true. The RTI program in School 1, according to Ms. A, was successful in keeping all but one of the students in her classroom out of special education. In her class this year (2011-2012) there was one student in her classroom that was referred to the Intervention and Referral Services (I&RS) Team for screening and possible services in special education. The remaining students in this classroom responded well to the RTI program interventions that they were studying, which was evident by their progress monitoring scores. The number of students in the

class who showed improvement in their reading was seven, and the overall average student improvement in lexiles for the whole class was 86.

In School 2, Ms. B's *Gradebook Spreadsheet Report* showed an overall class average to be 81.3 for marking period one and 81.0 for marking period two. As can be seen there is only a 0.3 percent difference, suggesting there is not much change in the class average. However, a few individuals in the class did improve slightly, in some cases raising their grade.

It needs to be noted that, even in a math class, if the students struggle in reading, , they may also struggle in some aspects of math, such as word problems. They must be able to read the directions properly, the word problems presented to them, etc. If they cannot read the directions to the problem, reading specific words and decoding them properly for comprehension, they will not know what the directions for the math problem are telling them to do, therefore, they will be unsuccessful in their attempt to complete the math problem. This is evident whenever I see a student taking a math test or doing math in some way, such as seat work or homework. If they cannot read well enough to understand what they are supposed to do for the math problem on which they are working, they will find it difficult to complete the problem. That is why the results of the *Gradebook Spreadsheet Report* are so important as it shows the class' success as a whole.

Results from the *Survey for Teachers,* showed that Ms. A's survey results (School 1) was overwhelmingly positive and showed a very successful RTI program in her classroom. She spends four days per week, 84 minutes each day in her RTI program. She has been using *Read 180, Springboard,* and at times *System 44,* when it is needed. She begins teaching her class in a large-group instruction setting for the first 20 minutes in

order to introduce skills. This time includes a time for the students to read the stories and instruction in what the small groups should do. She then breaks the class into small groups. These small group rotations include computer technology-differentiated instruction for 20 minutes, small-group instruction for more in-depth study of the story and story elements (for 20 minutes), independent reading for mastery (for 20 minutes), and a unit chapter test, which can generate a worksheet to help the students with their weakness. This test is done on the computers as well. Ms. A considers this RTI program to be very effective for her class.

The basis for the students' success rate is that the consistency of the program and the constancy of the program keeps them engaged and motivated, wanting to learn. This is one factor that helps them to stay in the regular education setting. She did have one student this year that was brought before the I&RS Team to decide if they should be evaluated for special education. This particular student is working at a lower level than the rest of the class and needs more simplified interventions.

Some of the positive outcomes that Ms. A has noticed are that the students are eager to read a book, they love to come to their small groups, and they like the computer work. The students work together as well. In her opinion, the lower level group has actually been showing better insight than in her higher level group. One seventh-grade student in the past, using *Read 180,* started the program at the second grade reading level and because of the interventions was able to progress to a sixth-grade level by the end of the year, in spite of displaying behavior problems.

Some of the negative outcomes mostly occurred at the beginning of the year, according to Ms. A. These included the students initially facing resistance in working

together with other students and separating from their friends, getting acclimated to working with others, displaying bad attitudes, and the display of bad moods by some of the students. Also, regarding the program itself, if a student cannot get onto the computer at the beginning of the year, they will not be able to complete the segments over the course of the year.

In most cases the students' grades have improved after using the interventions. Some of the students are not good test takers and Ms. A sees a lot of good verbal feedback from them, which she accepts as part of their grade. As far as the students completing the RTI program, all of the students passed successfully in the first marking period and two failed in the second marking period. One of the students who failed showed resistant behavior to the program and the other was referred to the I&RS Team.

Ms. A's ultimate goal for improvement of her class as a result of the RTI program is to raise the students' grade level in reading at least one grade level and to give them enjoyment in reading. At the end of the program Ms. A will give out certificates and rewards for the students' efforts and successes.

Ms. B's survey results (School 2) indicated her dissatisfaction in the RTI program to which she was assigned. She indicated that she was assigned to have RTI classes every period on a daily basis, but was constantly being asked to cover other classes and the consistency of the program was lacking. She did note that the RTI program was helpful in keeping her students out of special education and in the regular education classroom because of small group instruction and homogeneous grouping.

The positive outcomes of the program are the one-on-one instruction that occurs. The negative outcomes of the program are that there has not been enough teacher training

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from the school district and the program is inconsistent in regard to the RTI teachers being in the classroom.

Some student grades have improved enough to get them back up to their grade level, which has been one ultimate goal. Another goal is for the students to become proficient in NJAsk standardized school-wide testing.

The survey results of the Literacy Coach in School 2 show that there have been less referrals to special education due to improvements in assessments, thus keeping the students in the regular classroom. One drawback is a lack of RTI teachers. When possible, intervention is being done for three to four students at a time in Tier 3.

In a typical classroom the teacher identifies the students' skill problems and an RTI teacher comes into the classroom to work with these students, giving them interventions. This teacher follows their progress through progress monitoring. During the progress monitoring, other students can be identified and put into the RTI program. The ultimate goal for improvement is that the students will stay on grade level and not have any need for RTI.

The survey results of the math coach in School 2 indicate that the RTI program has helped the students stay out of special education. They do not fall behind. This is partly because the behavior of the students is much better as they are working in small groups and on a one-to-one basis. The positive outcomes of the school's RTI program are that it shows growth and improvement. In math there is improvement in basic computation without a calculator. This includes long division, percents, mental math, estimation, and problem solving, which includes word problems. The students' grades are getting better as a result of the RTI program as well. The negative outcomes of the RTI

program indicate that students continue to struggle with reading comprehension, especially noted in problem solving and using strategies such as tables, etc.

The ultimate goal for improvement is to bring students up to grade level and to pass the NJAsk standardized school-wide test. The best thing would be for the students to begin in the RTI program at a lower grade level to give them success on the NJAsk in the third grade.

The response to intervention program is different in each school and has proven to be more effective than not effective in both schools. The ultimate results have been the outcome of the students' successes and failures. For the most part this study has shown more of a success rate on the part of the RTI program in each school than of failure. In Ms. A's class her positive approach has been the main ingredient to keeping the students on track and motivated to learn. This speaks volumes about how to teach, especially at the middle school level. These results have been positive and shown potential for RTI in the middle school.

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