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School Psychologists' Perspectives of Response-To-Intervention: Training, Practices, and Implementation

Michelle Nathan
University of Nevada, Las Vegas

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SCHOOL PSYCHOLOGISTS' PERSPECTIVES OF RESPONSE-TO-
INTERVENTION:
TRAINING, PRACTICES AND IMPLEMENTATION

by

Michelle Y. Nathan

Bachelor of Science
Psychology
California Lutheran University
2003

Masters of Science
Educational Psychology
University of Nevada, Las Vegas
2004

Specialist in Education
School Psychology
University of Nevada, Las Vegas
2006

A dissertation submitted in partial fulfillment
of the requirements for the

Doctor of Philosophy in Educational Psychology

**Department of Educational Psychology & Higher Education
College of Education
The Graduate College**

**University of Nevada, Las Vegas
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Michelle Nathan

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Doctor of Philosophy in Educational Psychology

Department of Educational Psychology and Higher Education

Scott Loe, Ph.D., Committee Chair

Paul Jones, Ed.D., Committee Member

Joe Crank, Ph.D., Committee Member

Jesse Brinson, Ed.D., Graduate College Representative

Tom Piechota, Ph.D., Interim Vice President for Research &
Dean of the Graduate College

May 2013

ABSTRACT

School Psychologist's Perspectives of Response-To-Intervention:

Training, Practices and Implementation

by

Michelle Y. Nathan

Dr. Scott A. Loe, Examination Committee Chair
Associate Professor, Department of Educational Psychology & Higher Education
University of Nevada, Las Vegas

Specific learning disabilities currently account for the 39 percent of the 6.6 million students who receive special education services in a public school setting (Aud, Husser, Planty, Snyder, Bianco, Fox, et al, 2010). The current federal definition of what constitutes a specific learning disability states that school districts are allowed to use either the aptitude-achievement discrepancy model or alternative assessment methods, thereby legitimizing the use of response-to-intervention (RTI) (Dykeman, 2006).

The current study provided an investigation into the current training and practices of school psychologists and the barriers they face when implementing RTI within a school setting. The purpose of this study was to determine what assessment model (RTI, ability-achievement discrepancy, combination of models, or alternative models) that school psychologists use to assess for specific learning disabilities, how school psychologists spend their time as it relates to the assessment model, the barriers to implementing RTI, and how they viewed their training experiences.

Participants were 140 school psychologists selected at random from the Directory of Nationally Certified School Psychologists (NCSP). The majority of participants utilize an RTI standard protocol assessment model and serve two schools. Significant

relationships were found between assessment model and sites that evaluate intervention responsiveness and progress monitor, as well as the amount of time school psychologists spent analyzing intervention data. Significant results were not found for assessment model and number of completed Specific Learning Disability cases. No significant results were found for assessment model and sites that administer universal screening or provide academic interventions, or monitor implementation fidelity in the areas of universal screening, implementing interventions, progress monitoring, or evaluating intervention responsiveness. Results also showed no significant differences in the time school psychologists spent participating in the different aspects of universal screening, or developing or implementing interventions. Results indicated no relationship between assessment model and the proportion of school psychologists who administer standardized tests of academic achievement or intelligence and curriculum based measures when completing initial evaluations for Specific Learning Disabilities.

In regards to quality differences in training modalities, significant differences were seen in the areas of identifying scientifically based interventions, determining adequate progress. Differences were not found for the different aspects of universal screening, as well as developing, providing, and changing interventions when needed, documenting intervention implementation, and administering and graphing progress monitoring probes.

Results indicated that the barriers to implementing RTI were identified as fidelity and integrity related to decision making, intervention monitoring and implementation, progress monitoring and consistency across teachers. Another area identified was buy in from teachers, administrators and parents. A lack of understanding regarding the

concept and process of RTI, disabilities, and interventions, a lack of guidance and training, a lack of staff and time, workload, the cost of RTI and the lack of materials and research based interventions were other areas identified by school psychologists. Finally, problems with core instruction, problems with eligibility decisions and determinations, problems with assessment and measurement and the RTI model itself were listed as barriers to the implementation of RTI as an assessment model.

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CHAPTER 1

INTRODUCTION

According to the Aud, Hussar, Planty, Snyder, Bianco, Fox, et al (2010), during the 2007-2008 school year, 6.6 million or 13.4% of all public school enrollment were receiving special education services. About 39% of those receiving special education services received services under the category of Specific Learning Disabilities. Since the 2000-2001 school year, the percentage of students ages 3 to 21 being served under the category of Specific Learning Disabilities have decreased from a high of 6.1% to 5.4%.

There are differing perspectives among school psychologists when it comes to the assessment and eligibility practices in the area of Specific Learning Disabilities.

According to Hale, Kaufman, Naglieri, and Kavale (2006) practitioners have been led to believe that they must use either the ability-achievement discrepancy model or the Response to Intervention (RTI) model when determining whether or not a child has and is eligible for special education services under the category of Specific Learning Disability. However, this is not the case. With the enacting of Individuals with Disabilities Education Improvement Act of 2004 (IDEIA (2004)), states are not allowed to require the use of the ability-achievement discrepancy model (34 CFR Sec. 300.307(a)(1)) and they must permit the use of alternative, research-based procedures (34 CFR Sec. 300.307(a)(2)). However, the regulation further articulates that it is up to the individual state to determine the criteria that they will adopt. Therefore, practitioners must follow the law that is enacted in the state in which they practice.

RTI is defined as “the change in behavior or performance as a function of an intervention” (Gresham, 2002, p. 48). There are two paradigms that fall under RTI, the

standard protocol and the problem-solving protocol. The standard protocol is where all students with similar academic difficulties receive the same empirically validated intervention (Fuchs, Mock, Morgan, & Young, 2003), while with the problem-solving protocol, interventions are individually tailored based on examination of a student's skills (Christ, Burns, & Ysseldyke, 2005; Fuchs, Mock, Morgan, & Young, 2003; Hale, Kaufman, Naglieri, & Kavale, 2006). Most research conducted supports the standard protocol as there is more control over treatment fidelity. However, of the states that are currently implementing RTI, the problem-solving protocol appears to be the preferred model (Bender & Shores, 2007; Berkeley, Bender, Peaster, & Saunders, 2009; Fuchs, Mock, Morgan & Young).

In 1992, 45 states included some form of discrepancy criteria within their state definition of what constitutes a Specific Learning Disability (Ross, 1992). Since the implementation of IDEIA (2004), states began transitioning to include RTI within their states eligibility criteria when determining special education services under the category of Specific Learning Disability (Berkley, Bender, Peaster, & Saunder, 2009). There is currently conflicting information about how many states are implementing RTI. Zirkel and Thomas (2010) reported that 12 states have implemented RTI as the required approach to Specific Learning Disability identification, with five prohibiting severe discrepancy, four states allowing a combination of RTI and severe discrepancy, and three states only partially implementing RTI. They also found that a majority of states do not prohibit severe discrepancy, but rather are leaving the decision to individual school districts. About 20 states allow an alternative research-based method. Berkeley, Bender, Peaster, and Saunders (2009) reported that 15 states have adopted the RTI model, 22

states are in the development stage for creating an RTI model, 10 states are providing guidance to their schools, and three states are not in the process of creating an RTI model. Ahearn (2009) indicated that only six states require RTI as the sole eligibility criteria and do not permit the use of the severe discrepancy model, whereas 26 states allow either severe discrepancy or RTI and 10 states allow RTI, severe discrepancy, or any other research-based alternative.

Berkeley, Bender, Peaster, and Sanders (2009) found that, of the 15 states who are implementing an RTI model, 10 states are using a blended model, three states are using a problem-solving model, and only two states are using the standard protocol. However, the models vary in how they are conceptualized. For example, for those states operating within the problem solving model, Nebraska uses a five-step model while North Carolina uses a seven-step model. States that use a standard protocol model tend to be more similar; however, there are differences within specific areas. Oregon focuses on Tier II and provides specific guidelines on the amount of time students are to receive interventions, while Pennsylvania leaves it open to the educators to decide the details. Other states allow the individual schools to decide which model they will use, resulting in different models within individual school districts, while other states use a hybrid model that incorporates using the problem-solving model to determine the standard-protocol intervention that will be conducted at Tier II and the individualized instruction at Tier III.

Sullivan and Long (2010) found that school psychologists who are currently practicing under an RTI model spend less than a quarter of their time engaged in academic interventions. However, with the implementation of RTI, the amount of time spent on academic interventions has increased.

The majority of school psychologists have received some training related to RTI with the majority occurring at conferences or workshops, followed by site-based in-services, then graduate coursework, and supervised fieldwork. Those who have been in the field less than five years were more likely to receive training through graduate coursework and supervised field experiences, while those who have been in the field longer than five years receiving the majority of training through on-site in-services (Sullivan & Long, 2010).

The purpose of this study was to investigate school psychologists' current practices as it relates the identification of Specific Learning Disabilities. It examined where school psychologists receive training in regards to the different components of RTI and how well they felt the training prepared them to perform the activity. It examined how prevalent RTI is as an assessment model, which RTI protocol is most commonly implemented (standard, problem-solving, or a combination of the two), and what the models look like. It also addressed how the school psychologist spends his/her time within the different assessment models and protocols and their perceptions regarding universal screening, intervention planning, intervention implementation, progress monitoring, determining treatment fidelity, evaluating intervention responsiveness, assessment practices, and eligibility decisions.

Background of the Study

The nature of the issue relates to the current practices of school psychologists regarding the identification of Specific Learning Disabilities. The adoption of RTI as an assessment model brings with it a paradigm shift from a test and place model, to an intervention based model that uses single-subject experimental design to determine

effectiveness. With the paradigm shift comes a shift in current practices relating to the identification of Specific Learning Disabilities.

Prior to the RTI model, the ability-achievement discrepancy was used across the United States to assess students for special education. The use of the ability-achievement discrepancy examines the difference between a students' predicted achievement and their actual achievement (Mercer, 1997). Eligibility is made when there is a statistically significant difference between a students' score on an intelligence test and their score on an achievement test. This model has been under attack due to its mathematical shortcomings (Hallahan & Mercer, 2002; Evans, 1992; Reynolds, 1984-1985) and its reliance on intelligence tests (Finlan, 1994; Kavale & Forness, 1995).

RTI is currently being promoted as a replacement for the ability-achievement discrepancy model. RTI represents a system of assessing children for special education services that does not specifically rely upon any one assessment (Dykeman, 2006), but rather incorporates a number of assessment approaches. These approaches include functional assessment, authentic assessment, curriculum-based measurement, play-based assessment, applied behavioral analysis, formative evaluation, decision-making procedures, and standardized, norm-referenced assessment.

Within RTI models, students' progress in response to normal classroom instruction is monitored. Students who do not make sufficient progress are provided with either interventions derived from the regular curriculum or a different curriculum. Interventions can be provided by the general education teacher or specialist related to the academic area of concern (Fuchs, Mock, Morgan, & Young, 2003). Again, the progress is monitored and those that continue to make inadequate progress are either found

eligible for special education based on their continual failure to respond to intervention or are referred for a formal evaluation to determine special education eligibility. There are two paradigms that fall under RTI, the standard protocol, and the problem solving protocol (Christ, Burns, & Ysseldyke, 2005; Fuchs, Mock, Morgan, & Young, 2003; Hale, Kaufman, Naglieri, & Kavale, 2006). In a standard protocol, all students with similar problems receive the same intervention. By contrast, the problem solving protocol provides interventions that are custom tailored to each student's specific needs.

According to Dykeman (2006), RTI literature in professional, peer-reviewed journals have indicated that there is insufficient evidence to support the reliability and validity of RTI and that the literature that is available lacks sufficient scientific control. Therefore, he concludes that RTI may not be appropriate for eligibility decisions. However, supporters of RTI state that it may be a better indication over time of a true disability since it looks at achievement over time rather than at one point in time, which a single assessment does (Fletcher, Foorman, Boudousquie, Barnes, Schatschneider & Francis, 2002).

Purpose of Study

The purpose of the study was to examine which assessment models or combination of models are being used to identify Specific Learning Disabilities and to compare and contrast the assessment practices within the different models (ability-achievement discrepancy, RTI, combination ability-achievement discrepancy and RTI, or an alternative model). This study investigated the how practitioners spend their time, and their perceptions about universal screening, intervention planning, intervention implementation, progress monitoring, determining treatment fidelity, evaluating

intervention responsiveness, assessment practices, and eligibility decisions. Training issues were also explored in an attempt to understand how school psychologists receive training to practice within RTI models and their perceptions of how training aligns with current practices.

Statement of Problem

Individuals are referred for special education evaluations because they are struggling in school. The largest of the eligibility categories is Specific Learning Disability making up nearly 40% of students ages 3 through 21 served under the Individuals with Disabilities Education Improvement Act (Planty et al, 2009). Since the implementation of IDEIA (2004), states are starting to implement RTI as an alternative method to identifying student for special education services. Though studies were conducted examining which states are currently implementing RTI, there are currently no studies that examine which model or combination of models is most prevalent, how much time is spend within the different activities and how this time varies within each model, and the perceptions of school psychologists regarding their current practices.

The RTI model identifies students who are at-risk of academic failure rather than those who already are failing, it provides early identification and instruction, and it has a strong focus toward student outcomes (Vaughn & Fuchs, 2003). However, the model presents problems with its experimental basis, the uniformity of interventions, teacher problems (Swanson, 2008), and consensus on what constitutes non-responsiveness (Swanson, 2008; Vaughn & Fuchs, 2003).

Significance of the Problem

The current practices of school psychologists have changed since the allowance of RTI within the federal regulations for assessing Specific Learning Disabilities. States are beginning to allow, if not mandating, RTI as a method for identifying Specific Learning Disabilities. There is a significant amount of information about the RTI process and numerous position papers on RTI, but no study has been conducted on how the role of school psychologists, including assessment practices have changed with the implementation of RTI within the federal regulation for the assessment of Specific Learning Disabilities. Also, no study has examined the perception of school psychologists regarding the RTI models as a method for identification of Specific Learning Disabilities.

Research Questions

The following research questions will guide the proposed study:

- Which assessment model (RTI, ability-achievement discrepancy, combination of models, or alternative models) is most prevalent among school psychologists for evaluating suspected Specific Learning Disabilities?
- Do assessment practices differ among school psychologists who utilize RTI, ability-achievement discrepancy, combination models, and alternative models?
- What do school psychologists view as the barriers to implementing RTI effectively within a school setting?
- To what extent does RTI training provided through school districts, professional conferences, self-guided readings, graduate coursework, internship, and webinars align with school psychologists' current practices?

Assumptions

This study makes one assumption. It will be assumed that school psychologists have had at least some exposure to an RTI model for assessing students under the category of Specific Learning Disability. This was verified through questions within the questionnaire.

Limitations

Generalizing the results of the study will be limited to populations of similar makeup to the sample surveyed. Although the sampling method chosen is the most appropriate for the current study, sampling bias may exist due to a low response rate. Generalization is further limited because the study sample was selected from the roster of school psychologists holding the NCSP credential, which may not reflect the practices and perceptions of all school psychologists.

Implications for School Psychology

The role of school psychologists are to help children succeed academically, socially, and emotionally (NASP, 2003) by working with parents, teachers and other professionals to find individual solutions that best fit the needs of the student. School psychologists are trained to collaborate with others and help others understand child development and how it affects both learning and behavior. They are also able to provide counseling and intervention to individual students or a group of students, they can develop programs for students who are at risk or are failing at school, programs to increase safety at school, and programs to increase effective learning. However, one of the main roles of school psychologists is to evaluate students for special education services, including, but not limited to academic, social and emotional, and behavioral

assessments. Part of the role of evaluation is for school psychologists to take an active role in utilizing the RTI model as part of their assessment practices.

According to federal regulations, RTI is an acceptable method for assessing students for special education services under the category of Specific Learning Disability (34 CFR Sec. 300.307(a)(2)). According to the National Association of School Psychologists (NASP) (2006), the roles of school personnel will change with the implementation of RTI with regards to assessment and intervention. The role of a school psychologist includes overseeing the implementation of the RTI process. School psychologists are a resource for intervention planning, implementation, and documentation, as well as interpretation of data collected during the intervention, while conducting evaluations when students are referred for special education services. Per NASP (2006), they are among the best-trained professionals in the school district to handle the tasks that are involved within the RTI model and therefore are expected to play an active role in the model.

Examining which model is most prevalent, the ability-achievement discrepancy model, the RTI standard-protocol model, the RTI problem solving model, or a hybrid of the models, how school psychologists spend their time within each model, and their perceptions regarding referrals, problem identification, progress monitoring, intervention planning, intervention implementation, evaluating responsiveness, treatment fidelity, assessment practices, and eligibility decisions based on the model in which they practice impacts the field of school psychology because it measures the actual and perceived sustainability of RTI as a way of initially assessing Specific Learning Disabilities. Methods for assessing Specific Learning Disabilities change over time and regulations

are rewritten to match the current theory of what a Specific Learning Disability actually is. By determining school psychologists current practices and their perceptions of RTI it will contribute to whether or not the method will be sustainable in the future or whether new methods will need to be developed or the current theory revised.

Examining the perceptions of school psychologists can bring the field forward by identifying those areas that are perceived as weak. As stated by NASP (2006), one of the roles of the school psychologist is to facilitate trainings in the areas related to RTI. By identifying the areas that are perceived as weak across the field, these areas can then be targeted for specific trainings and additional research to help improve the perceived weaknesses. This study will also identify areas that are perceived as strengths thereby it will allow for these areas to be focused on and strengthened even more.

Summary

This chapter provided an overview of the proposed study involving comparing and contrasting the different assessment models. The comparison looked at the frequency of use of the different models, the role of the school psychologist within each model, how much time the school psychologist spends within each aspect of the model, and their perceptions on each aspect of the model. The background of the problem, the nature of the study and its significance and relation to school psychology were covered. Research questions were then outlined followed by a description of the assumptions. Chapter 2 will cover a more detailed review of the literature and Chapter 3 will describe methodology in greater depth.

CHAPTER 2

REVIEW OF RELEVANT LITERATURE

This chapter begins by presenting a history of the development of Specific Learning Disabilities and the different definitions that have emerged. The history of the legal protections provided to students with Specific Learning Disabilities will be presented and discussed with emphasis on the different models of identification; ability-achievement discrepancy model and Response to Intervention (RTI) model. The eligibility procedures of each model are presented, along with an alternative identification model.

A Brief History of Learning Disabilities

Specific Learning Disabilities originated with medical research in the early 1800s with brain pathology and then evolved with the research conducted within the field of education during the early 1900s. The combination of the two research areas helped shape the definition of a Specific Learning Disability. In its current form, the definition of a Specific Learning Disability is rooted in education and psychology, rather than medicine.

Medical Research

Even though Specific Learning Disabilities was not recognized as an official category for special education services until the 1960s (Hallahan & Mercer, 2002) the origins of Specific Learning Disabilities can be traced to medical research on brain pathology that occurred in Europe in the early 1800's. Franz Joseph Gall and John Baptiste Bouillaud studied individuals with brain injuries who experienced language disorders. Gall was one of the first individuals to explore the relationship between brain

injuries and mental impairment; observing adults who could not speak but could produce thoughts in writing (Hallahan & Mercer, 2002; Hallahan & Mock, 2003; Hammill, 1993). Gall could be credited with the idea that brain damage could selectively impair one area of the brain while not affecting other areas (Hammill). According to Gall, the brain is composed of three areas; vital sources, moral qualities, and intellectual qualities (Hallahan & Mercer; Hallahan & Mock). The vital sources are within the brain stem and are responsible for movement and sensation, the moral qualities belong to the basal ganglia and are “inclinations and affections of the soul” (Hallahan & Mock, p. 17); and the intellectual qualities are in different parts of the cerebral hemisphere.

Bouillaud, in the 1820s, furthered the work by Gall by conducting autopsies on individuals with known brain injuries (Hallahan & Mercer, 2002; Hallahan & Mock, 2003). His work confirmed Gall’s idea of localization of brain functioning. However, it was Bouillaud that determined that movement and sensory perception occurred in the cortex rather than the brain stem, and that speech occurred in the frontal anterior lobes of the brain.

Bouillaud was followed by Pierre Paul Broca in the 1860’s and Carl Wernicke in 1874. Broca discovered through autopsies that speech primarily occurs in the left side of the brain, particularly in the inferior left frontal lobe, which has become known as Broca’s area (Fletcher, Lyon, Fuchs & Barnes, 2007; Hallahan & Mercer, 2002; Hallahan & Mock, 2003). Individuals with impaired speech, particularly with slow, laborious, and dysfluent speech are now referred to as having Broca’s aphasia. Carl Wernicke was the next person to contribute to work on localization. He discovered that individuals with injuries to the left temporal lobe had difficulty producing meaningful sentences and

comprehending language in spite of having fluent and unlabored speech. This area became known as Wernicke's area and the disorder became known as Wernicke's aphasia.

In 1872, there was a shift in interest from studying localization of the brain as related to language, to disorders related to reading, thereby setting the stage for the concept of Specific Learning Disabilities. Sir William Broadbent reported on a case of an otherwise intelligent adult who, following a brain injury, had lost the ability to read while maintaining the ability to write and converse (Hallahan & Mercer, 2002; Hallahan & Mock, 2003). In 1877, Adolph Kussmaul reported on a case of an adult who was unable to read printed words following a stroke. Kussmaul labeled this phenomenon "word blindness". It was not until 1884 when the term "dyslexia" was introduced by Rudolph Berlin who presented cases on six adults who had lost the ability to read even though they maintained normal language abilities.

W. Pringle Morgan in 1896 was the first person to identify congenital word blindness in children (Hallahan & Mercer, 2002; Hallahan & Mock, 2003), while John Hinshelwood in 1903 conducted a brain autopsy on an adult with word-blindness and discovered that the cause of the reading disability occurred in the left angular gyrus. In 1917, Hinshelwood further noted that there was a disproportionate number of males experiencing reading disorders and speculated that it is inherited. He further speculated that the disability was due to a deficit in the visual memory associated with words and letters and that one-on-one tutoring should be provided that focused specifically on visual memory for words.

Educational Research

By 1918 compulsory education had emerged across the United States setting the stage for the idea of Specific Learning Disabilities and educational needs since literacy was becoming wide spread (Hallahan & Mercer, 2002; Hallahan & Mock, 2003). It was not until the 1920's when researchers in the United States began studying Specific Learning Disabilities, with particular emphasis on reading disabilities.

Samuel Orton conducted research at the State Psychopathic Hospital in Iowa City and found that students who were referred by teachers as experiencing difficulties learning to read had near-average, average, or above-average intelligence on the Stanford-Binet IQ test and that a person's intelligence may not always reflect true intellectual ability (Doris, 1993; Hallahan & Mercer, 2002; Hallahan & Mock, 2003). Through his research, Orton believed that reading disabilities occurred in over 10% of the school population and that it is "a complex activity that involved several areas of the brain" (Hallahan & Mercer, p. 7). Orton hypothesized that there was mixed dominance, which is where the brain stores mirror images of visual representations, which accounted for the reversals that are seen with individuals who experience reading difficulties. He termed this idea of mixed dominance strephosymbolia.

Another individual who has played a major role in the field of Specific Learning Disabilities is Marion Monroe, a research assistant of Orton (Hallahan & Mercer, 2002; Hallahan & Mock, 2003). Monroe developed diagnostic assessments that helped guide instruction, developed additional instructional strategies, and helped train teachers in providing intensive instructions. Through her research, it was found that a student's rate of progress was a function of the student's age, intelligence, amount of instruction received, the severity of the reading disability, personality and behavior, and supervision.

The instruction needed to be implemented regularly and systematically. Furthermore, it was Monroe who proposed that Specific Learning Disabilities be defined as the discrepancy between actual achievement and expected achievement and that specific types of reading errors be analyzed when conducting assessments so as to guide instruction.

Pre-Legislation Definitions

Between 1960 and 1975, the idea of Specific Learning Disabilities started emerging as a category for special education services and definitions began to emerge (Fletcher, Lyon, Fuchs & Barnes, 2007; Hallahan & Mercer, 2002; Hallahan & Mock, 2003). It was Samuel Kirk who coined the term Specific Learning Disability and defined it as:

... a retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, spelling, writing, or arithmetic, resulting from a possible cerebral dysfunction and/or emotional or behavioral disturbances and not from mental retardation, sensory deprivation, or cultural and instructional factors (Kirk, 1962, p. 263).

Kirk further describes students who have Specific Learning Disabilities as:

... [having] the intellectual capacity to learn to read but who does not learn after adequate instruction... Similar classifications are made for spelling disabilities, writing disabilities, receptive and expressive language disabilities, and arithmetic disabilities... these disabilities refer to a discrepancy between the child's learning capacity (as indicated by aptitude tests) and his achievement, without reference to the cause of the discrepancy between capacity and achievement (p. 263).

Based on his definition and terminology, parents began forming associations that used the term Specific Learning Disabilities, even though Kirk had stated that he does not like assigning labels to disorders (Doris, 1993; Hallahan & Mercer; Hallahan & Mock).

Barbara Bateman reintroduced and emphasized Monroe's idea of ability-achievement discrepancy (Hallahan & Mercer, 2002; Hallahan & Mock, 2003). Bateman proposed the following definition for Specific Learning Disability in 1965:

Children who have learning disorders are those who manifest an educationally significant discrepancy between their estimated intellectual potential and actual level of performance related to basic disorders in the learning process, which may or may not be accompanied by demonstrable central nervous system dysfunction, and which are not secondary to generalized mental retardation, educational or cultural deprivation, severe emotional disturbance, or sensory loss (Bateman, 1965, p. 220).

It was around that time that the federal government became interested in Specific Learning Disabilities. Two task forces were constructed with the aim of defining Specific Learning Disabilities (Hallahan & Mercer, 2002; Hallahan & Mock, 2003). Task Force I was composed of medical personnel and Task Force II was composed of educators. Task Force I developed the following definition:

... children of near average, average, or above average general intelligence with certain learning or behavior disabilities ranging from mild to severe, which are associated with deviations of function of the central nervous system. These deviations may manifest themselves by various combinations of impairment in

perception, conceptualization, language, memory, and control of attention or motor function... (Clements, 1966, pp. 9-10).

Task Force II developed two different definitions for Specific Learning Disabilities, with the first definition emphasizing Kirk's ideas and the second definition emphasizing Monroe's and Batemans ideas (Hallahan & Mercer, 2002; Hallahan & Mock, 2003). The first definition states that children with Specific Learning Disabilities are:

those (1) who have educationally significant discrepancies among their sensory-motor, perceptual, cognitive, academic, or related developmental levels which interfere with performance of educational tasks; (2) who may or may not show demonstrable deviation in central nervous system functioning; and (3) whose disabilities are not secondary to general mental retardation, sensory deprivation, or serious emotional disturbance. (Haring & Bateman, 1969, pp. 2-3)

The second definition states that:

Children with LD are those (1) who manifest an educationally significant discrepancy between estimated academic potential and actual level of academic functioning as related to dysfunctioning in the learning process; (2) may or may not show demonstrable deviation in central nervous system functions; and (3) whose disabilities are not secondary to general mental retardation, cultural, sensory and/or environmental deprivation or environmentally produced serious emotional disturbance (Haring & Bateman, 1969, pp. 2-3).

In 1968, the National Advisory Committee on Handicapped Children (NACHC; 1968), which was led by Kirk, defined Specific Learning Disabilities as:

... a disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written languages. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling, or arithmetic. They include conditions which have been referred to as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, developmental aphasia, etc. They do not include learning problems which are due primarily to visual, hearing, or motor handicaps, to mental retardation, to emotional disturbance, or to environmental disadvantage (p. 34).

Since that time, the definition of what constitutes a Specific Learning Disability has not changed from the definition established by the U.S. Office of Education in 1968 (Individuals with Disabilities Education Improvement Act of 2004 (IDEIA 2004), Sec. 602(30)). What have changed are the laws and regulations that govern the practices used in the identification of students who are considered eligible for special education services.

Federal Law with Respect to Specific Learning Disabilities

In 1966, the first law was passed that was titled Education of the Handicapped Act (EHA), however it did not include Specific Learning Disabilities as one of the categories that was eligible for special education services (Hallahan & Mercer, 2002) and resulted in the passing of the Children with Specific Learning Disabilities Act in 1969. This act adopted the definition by the National Advisory Committee on Handicapped Children proposed in 1968. However, even with the implementation of this act, the federal government still did not recognize Specific Learning Disability as a formal category for special education funding directly to school districts, but part G of the law

provided the U.S. Department of Education discretion in awarding funds for teacher education, research, and model service delivery programs.

Post-Legislation Definitions

It was not until 1975, with the passing of Public Law 94-142, the Education for All Handicapped Children, that Specific Learning Disabilities was considered an official category for special education services and funding. This law required states to provide free and appropriate education to all students, including students with Specific Learning Disabilities (Hallahan & Mercer, 2002; Hallahan & Mock, 2003). According to Hallahan and Mercer, the assessment practices that were proposed and implemented read as follows:

- (a) A team may determine that a child has a specific learning disability if:
 - (1) The child does not achieve commensurate with his or her age and ability levels in one or more of the areas listed in paragraph (a) (2) of this section, when provided with learning experiences appropriate for the child's age and ability levels; and
 - (2) The team finds that the child has a severe discrepancy between achievement and intellectual ability in one or more of the following areas:
 - (i) Oral expression;
 - (ii) Listening comprehension;
 - (iii) Written expression;
 - (iv) Basic reading skill;
 - (v) Reading comprehension;
 - (vi) Mathematics calculation; or

(vii) Mathematics reasoning

The Education for all Handicapped Children Act was renamed the Individuals with Disabilities Education Act (IDEA) in 1990 (Mercer, 1997). In 1992 and again in 1997, the Individual with Disabilities Education Act was reauthorized and the definition of what a Specific Learning Disability is remained the same (Reschly, 2000).

In 2004, the Individuals with Disabilities Education Act was once again reauthorized with changes made to the eligibility criteria, and was titled Individuals with Disabilities Education Improvement Act of 2004 (IDEIA). This reauthorization kept the same exclusionary factors (mental retardation, emotional disturbance, etc) and it kept the same academic areas a student can be found eligible (basic reading, reading comprehension, math calculation, etc) but added basic reading fluency (IDEIA 2004, Sec. 614(6)). The new changes allow school districts to use either the ability-achievement discrepancy model or alternative assessment methods for the identification for students under the category of Specific Learning Disability (Dykeman, 2006). The new eligibility criteria legitimized the use of RTI for the assessment and identification of Specific Learning Disabilities.

The continued use of the ability-achievement discrepancy model is seen in the statement “the child exhibits a pattern of strengths and weaknesses in performance, achievement, or both, relative to... intellectual development...” (34 CRF, 300.309(a)(2)(ii)). The permitted use of alternative assessments is seen in the statements “the child does not make sufficient progress to meet age or State-approved... standards... when using a process based on the child’s response to scientific, research-based intervention” (34 CFR 300.309(b)(1)) and that there is “Data-based documentation of

repeated assessments of achievement at reasonable intervals, reflecting formal assessment of student progress during instruction, which was provided to the child's parents" (34 CFR 300.309(b)(2)). In addition, it is also stated that States:

... must permit the use of a process based on the child's response to scientific, research-based intervention; and may permit the use of other alternative research-based procedures for determining whether the child has a specific learning disability. (34 CFR 300.307)

State Laws

There is conflicting information about how many states are implementing RTI. Zirkel and Thomas (2010) reported that 12 states have implemented RTI as the required approach to RTI, with five prohibiting severe discrepancy, four states allowing a combination of an alternate approach and severe discrepancy, and three states only partially implementing RTI. They also found that a majority of states do not prohibit severe discrepancy, but rather are leaving the decision to individual school districts, and approximately 20 states allow an alternative research-based method. Berkeley, Bender, Peaster, and Saunders (2009) reported that 15 states have adopted the RTI model, 22 states are in the development stage for creating an RTI model, 10 states are providing guidance to their schools, and three states are not in the process of creating an RTI model. Ahearn (2009) indicated that only six states require RTI as the sole eligibility criteria and do not permit the use of the severe discrepancy model, whereas 26 states allow either severe discrepancy or RTI and 10 states allow RTI, severe discrepancy, or any other research-based alternative.

Prevalence

When looking at the entire population of students ages 3 through 21 enrolled in public school during the 2007-2008 school year, 13.4% of children were receiving special education services under the Individuals with Disabilities Education Act, with 5.2% of public school students and 39% of students who receive special education services, receiving services under the category of Specific Learning Disability (Burns & Gibbons, 1998; Aude et al., 2010; Vaughn, & Fuchs, 2003). This is compared to the 1976-1977 school year when 8.3% of students were receiving special education services, with 1.8% of these students being served under the category of Specific Learning Disability.

Models for Assessing Specific Learning Disabilities

With the reauthorization of IDEIA (2004), states now have the option of which eligibility criteria to use when identifying students as being eligible for special education services under the category of Specific Learning Disability. According to Vaughn and Fuchs (2003), “establishing acceptable criteria for [Specific Learning Disability] identification historically has been the single most controversial issue in the field of [Specific Learning Disabilities],” (p. 137). Each method, ability-achievement discrepancy and RTI, is based on different assumptions as to what a learning disability actually is. The ability-achievement discrepancy model is based on the medical model and research and focuses on psychometrics while RTI is based on an educational model and focuses on behavior modification techniques.

Ability-Achievement Discrepancy Model

Continued with the reauthorization of IDEIA (2004) is the allowance of the ability-achievement discrepancy model. This model has its underlying assumptions based on neurological functions that are measured through the use of intelligence tests

and academic achievement tests. The ability-achievement discrepancy model states that a Specific Learning Disability exists when there are significant differences between an individual's estimated ability and their academic performance, either in one area or across subject areas (Mercer, 1997). This model uses statistics to compute severe discrepancy.

Etiology.

The ability-achievement discrepancy model has its foundations within medical research and views Specific Learning Disabilities as an intrinsic disability that is associated with one or more of the basic neurological functions associated with the central nervous system (Stanovich & Stanovich, 1996). Though it is outside the scope of the of the educational assessments conducted by school psychologists to determine which specific area of the brain is involved in the Specific Learning Disability(s), it is important to note that they are saying that the student does have a possible central nervous dysfunction. Therefore, it is important for school psychologists to understand the etiology relating to neurobiological factors that are possibly involved in Specific Learning Disabilities.

The central nervous system is comprised of the cerebrum, cerebellum, brain stem, and spinal cord (Goldberg, 2003) and is a major component to the federal definition of Specific Learning Disabilities (IDEIA 2004, Sec. 602(30)). Different areas of the brain have been identified as playing a role in the development of academic difficulties.

Individuals with Specific Learning Disabilities in reading tend to display deficits in the left hemisphere of the brain (Young & Beitchman, 2002). In studies involving reading and functional magnetic resonance imaging (fMRI), it has been found that there

are significant differences in the regions of activation between individuals who have been diagnosed with dyslexia and nonimpaired readers (Shaywitz et al, 1998; Shaywitz et al, 2002), though there are still conflicting results as to which regions are activated, which could be attributed to the age of the participants in the study (Shaywitz et al, 2002). The most consistently identified areas are the occipitotemporal, temporoparietal, and the inferior frontal regions (Eden & Zeffiro, 1998; Shaywitz et al, 1998; Shaywitz et al, 2002; Shaywitz et al, 2004; Shaywitz & Shaywitz, 2005). These areas were also identified as being important in the writing process, though also included are the bilateral lingual gyrus, bilateral fusiform gyrus, and the left inferior temporal gyrus (Richards et al, 2006).

Though no studies have directly examined the brain structure with only reading fluency difficulties, Shaywitz et al (2004) examined the effect of phonologically-based interventions on the brain structure. Through fMRIs it was found that after one year of intervention in reading fluency there was increased activation in the left hemisphere regions, including the inferior frontal gyrus and the middle temporal gyrus. A follow up study was conducted one year later and these individuals displayed an increased activation in the bilateral inferior frontal gyri, the left superior temporal, and the occipitotemporal regions. These regions are thought to be important for rapid processing of letter patterns.

A study conducted by Gernbacher & Kaschak (2003) identified many areas as playing a role in reading comprehension, which appears to be “a distributed network of brain regions... include(ing) areas involved in lower levels of language processing... as well as areas specific to discourse...” (p. 105). Areas that are involved are: Wernicke’s

area which is responsible for word and phonological processing, superior and middle temporal regions, which are responsible for phonology, lexical, and semantic processing, Broca's area which plays a role in production and syntactic analysis, and the middle and superior frontal regions which are responsible for semantics.

In math, two areas of the brain have been found to be associated with math disabilities, depending on the type of math (Dehaene, & Cohen, 1997; Dehaene, Molko, Cohen, & Wilson, 2004; Lemer, Dehaene, Spelke, & Cohen, 2003). It has been found and replicated that the storage and retrieval of arithmetic facts occurs in the inferior prefrontal cortex in the left hemisphere, as well as in the angular gyrus. Studies have also demonstrated that the ability to manipulate numerical quantities results in the bilateral activation in the inferior parietal lobes, which overlaps with spatial cognition and visual attention.

Statistics and the Discrepancy Model.

In 1977 the U.S. Office of Education proposed inserting a formula that described what constitutes a severe discrepancy (Hallahan & Mercer, 2002) following the implementation of Public Law 94-142 (Evans, 1992). However, there was strong criticism against the idea of a formula for computing severe discrepancy (Hallahan & Mercer; Evans, 1992; Reynolds, 1984-1985). Some criticisms were that some factors necessary for diagnosis cannot be quantified (Evans, 1992), that there is a lack of mathematical soundness and rationale for the inclusion of some variables, and that the proposed formulas attempted mathematical operations that were not considered appropriate for the type of measures, such as treating data as interval or ratio scales when in fact they were not (Reynolds, 1984-1985). The proposed formulas were also

dependent on the tests that were administered (Evans, 1992) and problems were created when multiple intelligence and/or academic tests were administered to the same individual resulting in multiple scores that could be used to calculate the discrepancy.

There are three different types of severe discrepancies; intraindividual achievement discrepancy, absolute achievement discrepancy, and relative achievement discrepancy (Peterson & Shinn, 2002). Intraindividual discrepancy is where the measure of achievement is subtracted from the measure of intelligence. It can occur in one of two forms, simple discrepancy, which is straight subtraction, or a regression discrepancy which takes into account regression to the mean and measurement error through mathematical transformation. The absolute achievement discrepancy is when an academic achievement cut off score is determined and the relative achievement discrepancy is where a student's academic achievement score is significantly different from local achievement standards. It was found that the different types of discrepancy models produced differing proportions of students meeting the severe discrepancy criterion, which in turn meant different eligibility results.

There are many mathematical formulas for assessing severe discrepancy. The first model is the simple difference score distribution model which looks at "the difference between the obtained achievement score when both measures are expressed on the same scale" (Reynolds, 1984-1985, p. 460). This model overestimates the number of cases determined severe for students of above-average ability and underestimates the cases found severe for students of below-average ability since it does not take into account the regression effect in the relationship between intelligence and achievement.

The second model for assessing severe discrepancy is the regression prediction discrepancy model, (Reynolds, 1984-1985) or the simple difference model (Wilson & Reynolds, 1984). This model takes regression into account by trying to correct for the standard error of the residual. However, this model was eventually rejected because the standard error of the residual is not actually being calculated thereby creating mathematical misconceptions. It was also rejected because there is a lack of theoretical support.

Another model is the regression estimates of true discrepancy scores (Reynolds, 1984-1985) or the true score discrepancy model (Wilson & Reynolds, 1984). This model is not supported because even though it takes into account the regressed ability and achievement scores as a function on the unreliability of the scores, the regression is not properly accounted for. This creates the same problems that were identified with the simple difference model. This model has been found to be useful only with measures that have low reliability.

The model that is recommended is the regression prediction discrepancy model (Reynolds, 1984-1985) or the prediction model (Wilson & Reynolds, 1984). This model was later renamed the regression discrepancy model or RDM (Evans, 1990). It calculates the regression between ability and achievement and it assesses the severity of the discrepancy. It was found to be conceptually and mathematically sound, but complex since test reliabilities and test intercorrelations are involved.

Due to the complexity of the regression discrepancy model, it was found that practitioners have difficulty accurately computing and analyzing discrepancy scores and are inconsistent with using discrepancy data when making decisions regarding eligibility

for special education services under the category of Specific Learning Disability (McLeskey, 1989; Ross, 1992). In a nationwide survey of school psychologists, Ross (1992) found that a majority of school psychologists were not knowledgeable about the effects of regressions towards the mean and were unable to evaluate discrepancies between test scores accurately. As a group, the sample was only correct in their eligibility decisions 60% of the time.

In 1992, 45 or 88% of states included some form of discrepancy criteria within their state definition of what constitutes a Specific Learning Disability (Ross, 1992). Due to the multitude of different ways to calculate severe discrepancy, one significant problem that has arisen is that, even though most states used some form of the discrepancy model, how discrepancy is calculated varied from state to state (Fletcher, Foorman, Bougousquie, Barnes, Schatschneider & Francis, 2002; Reynolds, 1984-1985). This is of some concern because different discrepancy models can result in different eligibility determinations. Peterson and Shinn (2002) showed that eligibility rates were shown to fluctuate between 2 and 35% of a random sample depending upon which state's criteria were being employed (Reynolds, 1984-1985).

Intelligence Testing.

One part of the discrepancy model includes the administration of an intelligence test. The intention of an intelligence test is to “estimate a person’s ability to learn new tasks... [and is] used to predict a student’s future performance from current performance and reasoning abilities” (Mercer, p. 151). It is the “best available long-range predictor of outcome and adjustment... [and] provides teachers, parents, and psychologists with some ideas about the child’s capabilities” (Sattler, 2001, p. 178).

There have been many criticisms with the use of intelligence tests for assessing for special education services, as well as with its use of educational planning across the different eligibility categories. One of the issues that have been debated is the concept of what tests of intelligence actually measures (Kavale & Forness, 1995). According to Finlan (1994), intelligence tests are merely tests of achievement since no one is born knowing the information contained in the tests, but rather learns the information, and therefore intelligence is inferred from the learned information. He further goes on to state that intelligence can be taught and therefore intelligence scores are unstable and can change with instruction.

On the other hand, a study by Share, McGee, and Silva (1989) reported that intelligence was unrelated to reading achievement. They found that one in three children with low intelligence prior to entering school were reading at grade level, whereas 28 out of 51 students who were considered to have average intelligence were reading significantly below grade level. This study showed that students with lower intelligence did not necessarily progress more slowly in reading than students of average intelligence. The authors concluded the relationship between educational achievement and intelligence was too weak to permit prediction.

Studies also revealed difficulties in discriminating students with Specific Learning Disabilities from students who are considered underachievers based on intelligence scores (Fletcher et al, 2002). McLeskey (1989) found that 57% of students who were considered underachievers were found to also have learning disabilities, while Francis, Shaywitz, Stuebing, Shaywitz, and Fletcher (1996) found that there were no differences in the rate of reading achievement over time or level of reading ability

between the ability-achievement discrepant group and the non-discrepant low achievement group. What they did find was that there were significant differences between the two low achieving groups (those with an ability-achievement discrepancy of 1.5 standard deviations or more, and students who were low achieving but did not display an ability-achievement discrepancy) and the students who were not reading impaired in terms of growth rate and reading ability, with the non-reading impaired group outperforming the other two groups.

The use of intelligence tests in educational planning and special education eligibility determinations has been debated since the case of *Larry P. v. Riles* in 1979, which looked at why African American students scored, on average, one standard deviation lower on standardized intelligence tests than Caucasian students and therefore were more likely to be classified as mentally retarded (Buss, 1996). The first phase of the case put a temporary ban on the use of intelligence tests in California to place African American students in self-contained classes. The second phase of the case made the ban permanent and expanded it to include all African American children in any special education category. However, this was petitioned and the court ruled that intelligence tests can be used, but not to classify a student as mentally retarded. The judge in this case concluded that the standardization procedures for the test was equal for males and females, but did not consider ethnicity, which was the reason why African American students scored lower than Caucasian students.

In a similar case, *Parents in Action on Special Education v. Hannon (PASE)*, the judge came to a dramatically different conclusion (Buss, 1996). This judge went through the intelligence tests and looked for bias in each question. It was noted that there was no

bias in most test items, and on those questions where bias was first questioned; he did not think there was racial or cultural bias. He further noted that there were only nine questions that raised suspicion of bias and should not be used. It was concluded that the items with bias did not distort the test results of African American students as a group.

Academic Achievement Tests.

The ability-achievement discrepancy model also relies on standardized, norm-referenced assessments of achievement to determine student's levels of academic achievement. These types of assessments have been criticized for being time consuming and expensive, as well as inadequate for making instructional decisions since they do not measure small changes in a student's progress (Madeliane & Wheldall, 1999). Also, standardized assessments are not meant to be administered more than once per year and therefore are inappropriate to progress monitor on a frequent basis (Deno & Marston, 2006; Shin, Deno & Espin, 2000).

Norm-referenced tests can also be biased against students from culturally diverse backgrounds. There are many ways to determine if standardized tests are biased against one ethnic or cultural group. Construct validity is whether or not the test measures what it is intended to measure (Cozby, 2001). Sampling is another area where bias can occur. As seen in the ruling of *Larry P. v. Riles* (1979) it is where a certain sample of the population is favored more than another group in the population and therefore the sample that is used to standardize the test favors that one cultural group (Skiba, et al., 2002). Another place where bias can occur involves predictive validity, which is "the degree to which test scores predict criterion measurements that will be made at some point in the future" (Crocker & Algina, 1986). Finally, as seen in *PASE*, item bias may contribute to

overrepresentation (Skiba, et al., 2002). Item bias is a type of bias that occurs when some ethnic groups answer particular items on assessment correctly more often than members of other ethnic groups. One reason for this could be due to a lack of exposure to the information that is requested. Based on the PASE case and other cases, no item bias has yet to be found. However, Shepard (1987) argued that with more sophisticated methodologies, item bias has been able to explain a small, but significant portion of the differences in test scores between African American and Caucasian students.

Though a student's language ability is a factor outside the control of educators, it inherently creates bias in the assessment process (Chamberlin, 2005). First, there are very few non-English-norm-referenced assessments that are consistently used with diligence in the United States to determine disabilities. This is problematic because the eligibility criteria mandates the use of norm-referenced tests for certain disabilities. English tests could be used, but they tend to assess language ability rather than assessing the intended construct (e.g. the verbal subtests on intelligence tests). Another way to conduct assessments is with the use of interpreters, however, using interpreters fundamentally changes the nature of what is being tested and inserts more room for non-standardization and error (Chamberlin, 2005; Ortiz & Flanagan, 2002).

Response to Intervention

Even though states are allowed to continue using the discrepancy model when it comes to the identification of Specific Learning Disabilities, alternative methods, such as RTI have been proposed (Dykeman, 2006). RTI was defined as "the change in behavior or performance as a function of an intervention" (Gresham, 2002, p. 480). It looks at the amount of discrepancy between a student's level of performance prior to and following

intervention; the larger the discrepancy, the more gain the student will need to obtain to meet academic or behavioral goals.

RTI does not make any assumption about the underlying cause of the academic difficulty; instead, it realizes that the difficulties the child is experiencing may reside within the child, within the instruction, or a combination of both (Scruggs & Mastropieri, 2003). It is used to systematically strengthen the quality of instruction and measures the child's response to that instruction. Those that are identified for a special education evaluation are those children who are non-responders, or those who do not make progress with systematic instruction.

The systematic instruction involves providing the student with effective instruction that is based on high quality scientific research (Burns, Jacob & Wagner, 2008; Kavale & Spalding, 2008). What constitutes scientific, research-based instruction is not defined within IDEIA (2004); however the No Child Left Behind Act (2001) defined scientific-based reading research as research that:

- (i) employs systematic, empirical methods that draw on observation or experiment;
- (ii) involves rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions drawn;
- (iii) relies on measurements or observational methods that provide valid data across evaluators and observers and across multiple measurements and observations; and

(iv) has been accepted by a peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective, and scientific review. (20 USC 6368, p. 1551).

RTI is typically represented by either a three or four tier model (see figure 1) which systematically addresses prevention of school failure (Burns, Jacob & Wagner, 2008; Gresham, 2002; Hawkins, Kroeger, Musti-Rao, Barnett & Ward, 2008; Shinn, 2007), though some researchers suggest a two tier model (Fuchs, Mock, Morgan, & Young, 2003). RTI is based on five principles:

(1) a proactive and preventative approach to education, (2) ensuring an instructional match between student skills, curriculum, and instruction, (3) a problem-solving orientation and data-based decision making, (4) use of effective practices, and (5) a systems-level approach. (Barnes & Harlacher, 2008, p. 419)

Even though it is entwined with special education, RTI is a general education initiative that all struggling students are entitled to (Kavale & Spaulding, 2008; Koltz & Canter, 2006). RTI is a method for ensuring better academic outcomes for all students, regardless of whether or not a disability is suspected. RTI has a strong focus towards student outcomes (Vaughn & Fuchs, 2003) since it focuses on response to instruction and therefore student achievement. A student's goals are based on their specific academic needs and the student's progress is monitored to see if they are progressing adequately through the curriculum. Their response based on the progress monitoring is what guides instruction and if done correctly, RTI can reduce the number of referrals for special education evaluations (Kavale, Kauffman, Bachmeier, & LeFever, 2008). The focus is

on early-intervention provided to all students who are at-risk for school failure (Barnes & Harlacher).

Figure 1: RTI Pyramid

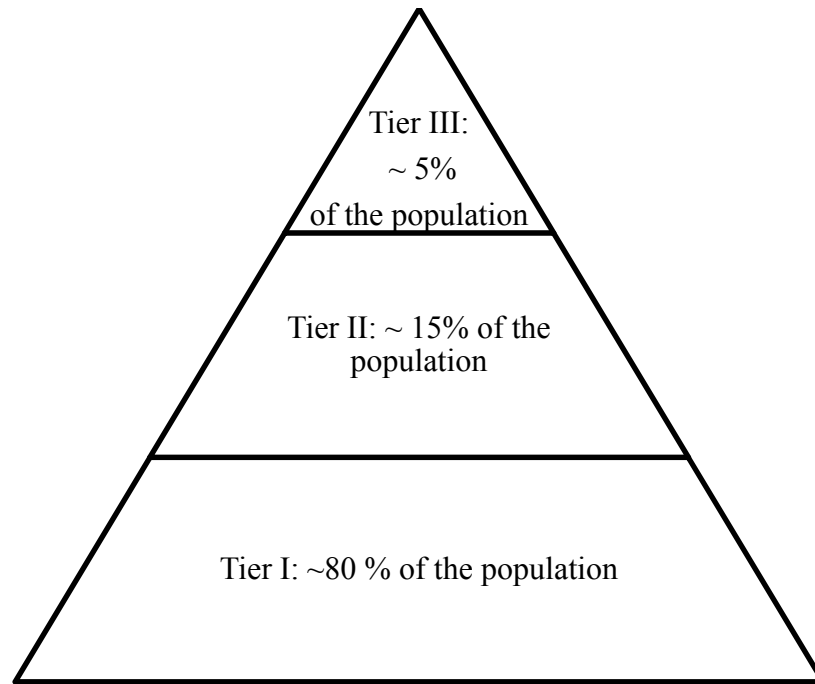


Figure 1: 3-Tiered RTI pyramid. Adapted from " Response to Intervention: A Practical Guide for Every Teacher, " by W. N Bender and C. Shores, 2007, p. 22.

Tiers.

Tier I of an RTI model is typically scientific, research based instruction within the general education setting (National Research Center on Learning Disabilities, 2005; Burns, Jacob & Wagner, 2008). The foundation of Tier I is a sound core curriculum that is administered to all students (Burns & Gibbons, 2008). At this tier all students are progress-monitored or benchmarked, three times a year (fall, winter, and spring) regardless of academic achievement levels (Burns & gibbons, 2008; Silberglitt & Hintze,

2007) typically using curriculum-based measures. The data is then analyzed and all students falling below a particular cut score are identified as having difficulties and may be in need of further assistance (Schilling, Carlisle, Scott, & Zeng, 2006). About 80% of students should respond to this level of instruction and not need further assistance. Tier I allows for the early identification of students who are struggling since students are supposed to be progress monitored three times per year (Vaughn & Fuchs, 2003). This universal screening will likely prevent students from being overlooked but who are in fact struggling academically by identifying those students and allowing those students to receive the necessary instruction.

The next level is Tier II. At this tier, those students who were identified in Tier I as being at-risk receive small-group, supplemental instruction in the general education setting (NRCLD, 2005). Though timelines vary in the literature, this intervention typically lasts 6 to 12 weeks and students are assessed one to two times per week (NRCLD; Shinn, 2007). Following the intervention, a team of professionals reviews the progress monitoring data that was collected. The team then makes a decision about whether the student has made adequate progress and should return to Tier I, whether the student is making progress and should remain at Tier II, whether even more intensive intervention is needed, or whether a referral for special education is warranted due to suspicion of a learning disability (Burns, Jacob & Wagner, 2008). About 15% of the student population should respond to Tier II interventions and not need to be referred to Tier III (NRCLD).

Depending on the RTI model one endorses, Tier III can include even more intensive interventions that typically occur for 10 to 12 weeks above and beyond the

interventions received at Tier II or the student can be referred for a special education evaluation (NRCLD, 2005, Burns, Jacob & Wagner, 2008). If additional interventions are conducted, the student continues to be assessed one to two times per week to determine if they are progressing within the intervention. Only about five percent of students should be receiving services at Tier III.

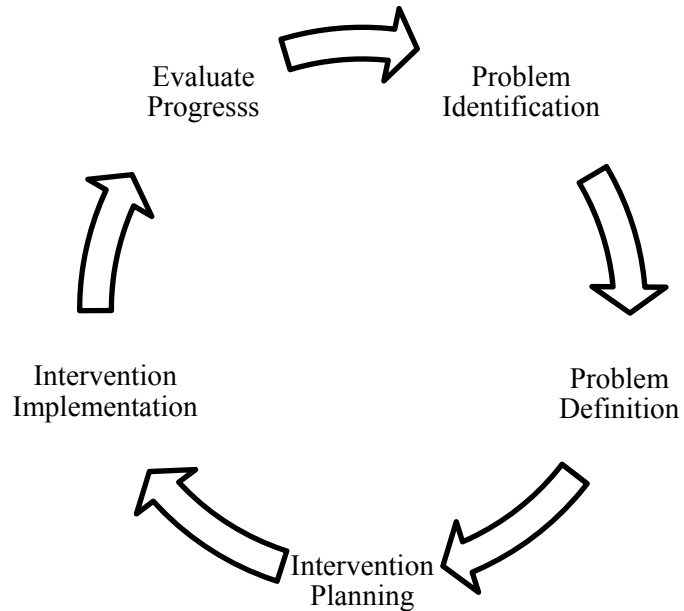
RTI Paradigms.

There are two RTI paradigms that have evolved, the standard protocol and the problem-solving protocol (Christ, Burns, & Ysseldyke, 2005; Fuchs, Mock, Morgan, & Young, 2003; Hale, Kaufman, Naglieri, & Kavale, 2006). The standard-protocol approach to RTI requires the same empirically validated treatment for all children with similar problems (Fuchs, Mock, Morgan, & Young, 2003). With this model everyone involved knows what to do, how to do it, and it is easier to implement with accuracy. The standard protocol requires that all students with similar problems receive the same intervention. This intervention was previously validated as reliable and valid through scientific research.

The problem-solving protocol utilizes individualized interventions that are based upon a careful examination of a student's skills (Christ, Burns, & Ysseldyke, 2005; Fuchs, Mock, Morgan, & Young, 2003; Hale, Kaufman, Naglieri, & Kavale, 2006). It rests upon the belief that no two students are the same and therefore nor will a given intervention be effective for all students. The problem solving model has either four or five steps (Bender & Shores, 2007; Brown-Chidsey & Steege, 2005) and can be conceptualized as a circular flow map (see Figure 2). The first step is problem identification where the students' difficulties are identified by school personnel. The

second step, problem definition, is where the problem is evaluated and compared to a predetermined standard (same aged peers, school curriculum, etc...). This is where the problem is defined in specific, objective, and measurable terms. The next step is planning the intervention. The intervention is individually designed based on the problem identified and the degree of discrepancy between their initial level of academic functioning and expected level. At this stage, a time line for the intervention, the intervention including how often the intervention will occur, what materials are needed for the intervention, and who will be leading the intervention, as well as a plan for when, how often, and by whom would conduct progress monitoring is determined. The fourth step is conducting the intervention with fidelity and monitoring progress either weekly or biweekly for the duration of the intervention. The fifth step is to evaluate progress based on the data collected throughout the intervention. Based on the data, the team can identify whether or not a problem still exists and the process starts all over again, with step one. The problem solving model is often characterized by a circular graph, with each time around through the process often representing each tier with interventions getting more complex each time.

Figure 2: Problem Solving Flow Chart



Response to Figure 2. Problem-Solving Model Flow Chart. Adapted from
Intervention: A Practical Guide for Every Teacher," by W. N. Bender and C.
Shores, 2007, p. 52.

Most research supports the standard protocol over the problem solving protocol as there is more control over treatment fidelity since all students who are experiencing similar difficulties are receiving the same, scientifically based interventions. However the problem solving model seems to be the preferred model within RTI (Bender & Shores; Berkeley, Bender, Peaster, & Sanders, 2009) although the criticisms include a “lack of empirical and valid data concerning... implementation and outcomes” (Bender & Shores, p. 48). In fact, Fuchs et al. (2003) found that there was a lack of treatment

fidelity and a lack of academic growth or improvement in behavior within the problem solving model and that both models “have yet to prove feasible for large scale implementation” (p. 167).

Berkeley, Bender, Peaster, and Sanders (2009) found that, of the 15 states who are implementing an RTI model, 10 states are using a blended model, three states are using a problem-solving model, and only two states are using the standard protocol. However, the models vary in how they are conceptualized. For example, for those states operating within the problem-solving model, they found that Nebraska uses a five-step model while Carolina uses a seven-step model. Those states that use a standard protocol model tend to be more similar; however, there are differences within specific areas. They found that Oregon focuses on Tier II and provides specific guidelines on the amount of time students are to receive interventions, while Pennsylvania leaves it open to the educators to decide the details. Other states allow the individual school to decide which model they will use, resulting in different models within individual school districts, while other states use a hybrid model that incorporates using the problem-solving model to determine the standard-protocol intervention that will be conducted at Tier II and the individualized instruction at Tier III.

Single-Subject Experimental Design.

RTI is a form of a single-subject experimental design since it should include establishing a baseline, introducing a treatment, collecting data on the treatment, and determining the effect of the treatment based on the data (Brown-Chidsey & Steege, 2005). However, it is unclear from the reviewed literature whether the key-features of a single-subject experimental design are actually met in either of the two paradigms. In

order for the single-subject experimental design to contain internal and external validity, the intervention needs to be removed or changed in order to see if it was the intervention that was contributing to the observed growth (Neuman & McCormick, 1995). There are multiple ways to do this, reversal designs, where the intervention is removed and baseline is taken a second time; multiple-baseline designs where multiple baselines are collected at the same time on either two different behaviors on the same student or on the same behavior on more than one student; and alternating treatment designs where two or more different interventions are introduced simultaneously and are randomly alternated until one treatment is shown to be more effective. The multiple-baseline designs appears to be the most effective when the skill that is being taught cannot be reversed, such as with gaining academic skills and therefore appears to be more appropriate for the school setting.

Instruction/ Interventions.

The core feature of RTI is solid core instruction provided to all students within the general education setting (Kovaleski, 2007) and the use of scientific, research-based interventions. All instruction and interventions need to be research based and core instruction needs to be differentially effective in facilitating student learning. Without scientific, research-based core instruction and interventions, teachers and school districts cannot say the requirements of RTI are met. According to Kratochwill, Clements, and Kalymon (2007), there is a very limited number of evidence based interventions available for schools to choose from and therefore teachers and other school personnel are unlikely to meet an acceptability standard when looking at quality of instruction. The literature further noted that major limitations in the research are the generalizability of the

intervention to the educational setting since most research is conducted in a very controlled setting with a limited population (Kratochwill, Clements, & Kalymon; Knotek, 2007), and that there is little consensus as to what constitutes scientific, research-based interventions as there is different criteria across different organizations/agencies (Kratochwill, Clements, & Kalymon).

Treatment Integrity.

Treatment integrity is defined by Hagermoser Sanetti and Krotchwill (2009) as “the extent to which essential intervention components are delivered in a comprehensive and consistent manner by an interventionist trained to deliver the intervention” (p. 448) or the degree to which the intervention is implemented as intended (Gresham, 1989; Lane, Bocian, MacMillan, & Gresham, 2004). Treatment integrity has always played an important role with pre-referral interventions under the ability-achievement discrepancy model; however, with the adoption of RTI, treatment integrity has been emphasized. The measurement of treatment integrity is an important component so that accurate conclusions can be made about the effectiveness of the interventions (Lane, Bocian, MacMillan, & Gresham, 2004).

Cochrane and Laux (2007) and Cochrane and Laux (2008) investigated school psychologists perceptions of treatment integrity and their role in measuring treatment integrity. They found that treatment integrity is viewed critical but often not measured. In their 2007 study, just over 10% of respondents stated that they always measure treatment integrity, 50% said they sometimes measure it, while 39.3% said they never measure it. In 2008 43.9% stated that they never measure it and 1.9% said it was always measured. When treatment integrity is measured, it tends to be measured through indirect

methods. In 2007 7.4% of respondents stated it was measured through direct observation, 1.7% used observed post-ratings, 17% used teacher self-report, and 73.8% used interviewing. In 2008, they found that 40.4% of school psychologists stated that problem solving teams sometimes collected the treatment integrity data, while 67.3% of school psychologists indicated that if and when records were reviewed, there would be no documentation of treatment integrity, which is down from 83% in 2007. They also studied why treatment integrity data is not collected and found that there is lack of time, teachers do not agree to it or understand it, administrators do not support it, and that school psychologists do not have the authority to make it mandatory.

Werts, Lambert and Carpenter (2009) surveyed special education administrators in North Carolina. When asked to identify all the individuals whom they felt should be responsible for collecting RTI data, 87.5% indicated school psychologists, 85% indicated general education teachers, 80% indicated special education teachers, and 75% indicated related services personnel. Administrators indicated that general education teachers should be responsible for determining responsiveness versus non-responsiveness, which was followed by special educators, then reading specialists, then school psychologists, then parents, then guidance counselors, and then principals. The researchers found that 42.9% of respondents indicated that determining intervention response should be a team decision.

These researchers also found that most administrators feel that intervention sessions should last 30 minutes and occur at least once a day. A small percentage indicated that interventions should last one hour, and a small percentage indicated that it should occur twice a week, once a week, or every other day. They found that there is no

consensus as to how long interventions should occur before determining responsiveness; some indicated two months and some indicated one month, however, most administrators indicated that it really depended on the student's individual needs.

Assessment.

With the allowance of RTI within the federal regulations, alternative assessments were needed to progress monitor students response to scientifically-based interventions as the student moves through the tiers. Curriculum-based assessment (CBA) is one way to progress monitor students. CBA was developed in the mid 1970's by Stan Deno at the University of Minnesota's Institute for Research on Learning (Cusumano, 2007) and was defined by Deno (1987) as "any approach that uses direct observation and recording of a student's performance in the local curriculum as a basis for gathering information to make instructional decisions" (p. 41).

Using curriculum-based measures (CBMs) for benchmarking at Tier I allows for school norms to be established, which will aide in the development of more accurate cut scores, can be used to evaluate the effectiveness of current instructional methods, and can be used to develop a trajectory and timeline for the intervention since it shows where the student currently is, and where the student needs to be by a certain date (Schilling, Carlisle, Scott, & Zeng, 2006). CBMs are also used for frequent monitoring for those students who were identified as at-risk for academic difficulties based on the benchmark score (Burns & Gibbons, 2008). The frequent progress monitoring will occur within Tier II or III of the RTI framework. Those students who fall below a specified cut score will then receive intervention and will be progress monitored on a regular basis to determine how they are progressing within the intervention.

A significant amount research has been conducted that examined the reliability and validity of CBAs and CBMs. There are differing conclusions as to whether CMAs and CMBs are reliable and valid measures of reading achievement, including reading comprehension, for different populations and for educational decisions (Burns, Jacob, & Wagner, 2008; Elliott, Lee & Tollefson, 2001; Fuchs & Deno, 1992; Madelaine and Wheldall, 1999; Schilling, Carlisle, Scott, & Zeng, 2007; Roehig, Petscher, Nettles, Hudson, & Torgesen, 2008). Reliability is defined as “the degree to which a measure is consistent” (Cozby, 2001, p. 350), while validity is defined as “the degree to which an assessment procedure measures what it purports to measure” (Burns, et al., p. 271).

Research has been conducted that compared CBMs to other standardized, norm-referenced tests. Studies have found high correlations between reading aloud measures and standardized tests, with correlations ranging from .73 to .91 (Madelaine & Wheldall, 1999; Schilling, Carlisle, Scott, & Zeng, 2007). In a study by Hosp and Fuchs (2005), CBM was examined in relation to the Woodcock Reading Mastery Test-Revised (WRMT-R). It was found that reading decoding, word reading, reading comprehension, basic reading skills and total reading score were significant at all grade levels examined (grades 1 through 4). Schilling, et al., (2007) examined oral reading fluency and its relationship with the Iowa Test of Basic Skills (ITBS) and found that oral reading fluency accurately identified “students whose reading was below average on the ITBS reading total in spring” (p. 442). However, they used teacher collected data scores and had no information on the accuracy of the Dynamic Indicator of Basic Early Language Skills (DIBELS) data collection.

Hosp and Fuchs (2005) examined hit rates, or the number of students correctly identified as at-risk, between CBM across grade levels and the WRMT-R. They found that the CBM was able to distinguish mastery versus nonmastery at each grade level by accurately identifying students whose standard scores on the WRMT-R were below 90 at grade 1 and a standard score below 85 at grades 2 through 4. However, Schilling, Carlisle, Scott, & Zeng (2007) found that even though there was a high percentage (86% for second grade and 88% for third grade) of students correctly identified as at-risk, 12% of second graders and 14% of third graders were not identified as at-risk, even though they ended up scoring below the 50th percentile on the ITBS. Also, they found that a large percentage of students (35% for second grade and 45% for third grade) were identified as at-risk, when in fact they were not.

Cut scores or the establishment of benchmark scores, helps differentiate between students who are progressing adequately within the curriculum, those at-risk for academic difficulties and those students who are performing below expected levels when compared to the curriculum. Standards setting or the establishment of cut scores is “one of the most important tasks in test development, administration, and reporting” (Cizek, 2006, p. 225) because it is used to make decisions. Cut scores are provided when using a published measure to progress monitor; however, when not using a published measure, it is up to the administrator to determine a cut score. This can cause significant variability between different test administrators, which can result in different decisions being made.

Passages can be chosen from instructional materials within the curriculum, from basal readers or from published measures such as the Dynamic Indicator of Basic Early Language Skills (DIBELS) (Francis, Santi, Barr, Fletcher, Varisco & Foorman, 2008).

Hosp and Fuchs (2005) reported that generic passages are as effective as curriculum-specific passages in measuring reading growth, while Madelaine and Wheldall (1999) reported that curriculum-specific passages were not as sensitive for reading growth over time as basal-readers. When choosing measures, an individual must carefully assess the difficulty of the passage. When looking at instructional level of the material, Fuchs and Deno (1992) and Madeliane and Wheldall reported that independent or instructional level materials were more sensitive to measuring student growth than frustration-level material.

Madelaine and Wheldall (1999) reported that significant variability had been found in passages drawn from the same basal reading series as well as differences in readability within the same story or passages. This creates a situation where the effects of readability would overshadow the student's true reading rate and therefore would make it impossible to determine if a student's ability is improving or declining. If using these measures to progress monitor reading fluency there can be substantial differences between the obtained scores that are not related to student achievement. This would result in a profile that is not reliable and valid and therefore would not be able to be interpreted with accuracy. Christ and Silberglitt (2007) found that standard error of measurement and dependability coefficients were improved for raw scores when passages of equivalent difficulty levels were selected when a small sample size is present.

There are a couple of different ways to equate scores so they can be interpreted across measures of different difficulties (Francis, Santi, Barr, Fletcher, Varisco & Foorman, 2008). One way is equating the readability scores between measures, however this has been found not to be effective since readability formulas are imperfect and can

result in different scores depending on the model used. Another way to equate scores is with scaling, which involves converting raw scores into scores that are independent of the material presented. Equipercentile equating is one way to scale scores. It involves transforming scores to the same percentile ranking (Jones, Smith & Talley, 2006). However it requires a large sample size in order to reduce sampling error and create a normal distribution. Therefore, this method is typically not feasible within a normal school setting. None of the studies examined were able to present a way to efficiently and accurately equate difficulty between measures.

Standard error of measurement and confidence interval helps communicate stability of the obtained scores since it provides the range that scores are likely to fall (Christ & Silberglitt, 2007). Christ and Silberglitt found that standard error of measurement is between 4 and 15 words correct per minute (WCPM) on oral reading fluency measures, with a mean of 10 WCPM. This means that there can be a five-point range on both sides of the obtained score. This can make a huge difference when trying to interpret the obtained data. It was suggested that the confidence interval should be reported to aide in interpretation of the obtained scores. However, more research needs to be conducted to see if there are changes in data interpretation when the score and confidence interval are reported versus when only the score is reported and if is it feasible to report within the school setting.

Research has also been conducted examining the potential biases when using CBM. One type of bias is related to bilingual students. It was suggested that English Language Learners may be able to decode text rapidly, but may not be able to comprehend what they are reading due to a lack of vocabulary (Riedel, 2007). This could

create an overestimation of true reading ability if using oral reading fluency as a measure to monitor reading progress. However, results by Baker & Good (1995) found that CBMs are as effective in progress monitoring English Language Learners as it is in progress monitoring English-only students, including as a measure of reading comprehension. Riedel (2007) found that oral reading fluency and reading comprehension are more strongly correlated with English Language Learners than with English only students. Knoff and Dean (1994) examined the effects of gender, socioeconomic status and race with CBM measures in winter and spring with grades 1 through 4. They found that at grade 1, in winter there were significant main effects for socioeconomic status, whereas in the spring at grade 1, there were significant main effects for gender and socioeconomic status. In both winter and spring no significant main effects were found for grades 2 through 4. In winter and spring in grade 1 it was found that students who received free lunch had fewer WCPM than those who received reduced lunch or no lunch support. This gives support that even though there were gender and socioeconomic biases in the first grade, these biases were gone by grade 2. This also gives support that CBMs are not culturally or racially biased.

When examining CBM across grade levels, there are conflicting results. Even though reading fluency has been shown to increase with grade level (Potter & Warme, 1990), the relationship between oral reading fluency and comprehension decreases as grade level increases (Schilling, Carlisle, Scott, & Zeng, 2006) which is due to the increasing importance of other factors. Hosp & Fuchs (2005) however found that the relationship between oral reading fluency and comprehension did not change across grades. What they found was that the relationship between decoding and CBM were

higher at grades 2 and 3, which is when students are learning to decode according to Chall's developmental stages, than at grades 1 and 4, and the relationship between word reading and CBM and basic skills and CBM were higher at grades 1, 2, and 3 than at grade 4. More research will need to be conducted to determine how oral reading fluency and comprehension are correlated at each grade level since oral reading fluency appears to be the progress monitoring tool of choice, especially in later elementary school grades.

Responsiveness versus Nonresponsiveness.

There are several methods for determining responsiveness to intervention (McKenzie, 2009; Swanson, 2008; Vaughn & Fuchs, 2003), however there is no consensus as to what method to use. Absolute discrepancy is divided into two approaches. The benchmark method sets a criterion ahead of time and when the student meets that criterion they no longer require additional interventions (Barnes & Harlacher, 2008; Fuchs & Fuchs, 2007; McKenzie, 2009), whereas if they do not meet the criteria, they are deemed nonresponsive and proceed to the next tier of intervention. The second option under absolute discrepancy is where a standardized, norm-referenced score is utilized, and if students fall below the identified score, they are considered nonresponsive. However, there is no consensus as to what that score should be, but it has been suggested that it should be at the 24th or 25th percentile (Fuchs & Fuchs, 2007). This method is considered problematic because a student might have made significant growth with where they began but may still be considered non-responsive since they did not meet the pre-specified level of achievement.

The second option is to measure a student's rate of growth compared to expected levels of growth rather than on the student's final status, also known as slope of

improvement (Barnes & Harlacher, 2008; Fuchs & Fuchs, 2007; McKenzie, 2009). The expected levels of growth can be based on normative framework, a preset criterion, or compared to the slopes of other students. Students who meet their goal in an acceptable time frame are identified as no longer requiring interventions. Vallutino, Scanlon, Sipay, Small, Pratt, Chen et al. (1996), described a method that rank orders the student's growth slopes, the median slope point is determined, and students that fall below the median slope are considered non-responders. This method is flawed in that it allows students who are now meeting standards to be considered as non-responders because of where they fell in relation to the others students or norms.

Another option is a combination of a preset criterion and a student's rate of growth, which is known as a dual discrepancy. The final method is where a baseline is taken, a goal is set, a time frame is determined, and an aimline is drawn connecting the baseline and the goal line. Success is deemed when the student has three consecutive progress monitoring data points above the aimline (Barnes & Harlachar, 2008). This method requires both slope of improvement and the students final status in relation to a specified norm to be examined in order to be considered responsive or nonresponsive. This method has been found to be the most reliable since it considers both the rate of improvement and a comparison to some set standard.

Differentiating Different Eligibility Categories.

Students with other disabilities also display an inability to learn. RTI is not able to distinguish between mild mental retardation, behavioral disorders, attention deficit/hyperactivity disorder, and Specific Learning Disabilities (Mastopieri & Scruggs, 2005; McKenzie, 2009; Vaughn & Fuchs, 2003; Wodrich, Spencer, & Daley, 2006). All

these students are not considered to have a Specific Learning Disability. The distinction between mild mental retardation and Specific Learning Disability is one of the exclusionary factors for eligibility and is a very important piece of information for determining educational goals. Students with mild mental retardation require goals that are more functional in nature in order to transition into employment and gain greater independence, whereas students with Specific Learning Disabilities tend to have goals that are more academic in nature. Also, RTI is not be able to distinguish between those who would typically be considered slow learners as they do not progress within the curriculum at the same rate as normal peers.

Identification Bias.

Podell and Soodak (1993) found that teacher referral decisions are biased in the fact that the decisions they make tend to be unrelated to academic difficulties, but rather a student's socio-economic status (SES), particularly if they are from low SES, and environmental influences, particularly if environment cannot be explained for the learning difficulties. While the ability-achievement discrepancy model relied on teacher referrals, response to intervention relies on scores obtained from the universal screenings when making referrals for special education services (Vaughn & Fuchs, 2003). This reduces teacher perception of what constitutes academic difficulty and student performance. Also, by referring students based on obtained scores and determining eligibility based on RTI, disproportionality should be reduced and the rate at which males and females are identified for learning disabilities should become equal.

However Dunn, Cole and Estrada (2009) and Goodman and Webb (2006) found that even under the RTI model, there is still teacher bias with referrals. Goodman and

Webb found that there is still subjectivity since nearly half of the group they studied were found to meet standards on state-mandated achievement tests despite being referred for special education due to a reading deficit. Dunn, Cole and Estrada found that 50% of the common variance in teacher referrals was accounted for by student inattention and aptitude, which they described as inability to maintain focus and poor reasoning skills/timely completion of assignments. They also found that the student's SES, race, culture, and/or gender may also play a role in teacher referrals.

Experimental Bias.

Swanson (2008) stated that there is a very weak experimental base when it comes to RTI. He further goes on to state that no studies have been conducted that included randomization of children at-risk for Specific Learning Disabilities into different interventions and/or assessment models. He also states that very few studies have been conducted that compared RTI to other assessment models, and the studies that have been conducted utilized post hoc assessments. When reviewing the literature, not much has changed in terms of the experimental base when it comes to comparing the eligibility rates of the different assessment models.

Alternative Model

Evaluations based solely on RTI do not address the underlying factor associated with the Specific Learning Disability, as required by federal law (Wodrich, Spencer, & Daley, 2006; Vaughn & Fuchs, 2003). In other words, RTI alone is not able to address the issue related to basic psychological processes or central nervous dysfunction, it is only able to detect that a deficit occurs, not why it occurs and therefore it only documents one part of the definition (Kavale, Kauffman, Bachmeier, & LeFever, 2008; Wodrich,

Spencer & Daley; Ofiesh, 2006). According to Ofiesh, states are invalidating the construct of Specific Learning Disability when using solely a tiered model since they are not including a measure of cognitive processing.

According to the National Center on Learning Disabilities (2005), the National Joint Committee on Learning Disabilities recommended that evaluation for special education still needed to be individualized, address intra-individual differences, and be comprehensive in nature, using multiple methods including clinical judgment and other sources of relevant information. In other words, eligibility cannot be based solely on information obtained during RTI or solely using ability-achievement discrepancy.

Since neither RTI nor the ability-achievement discrepancy model is sufficient alone to identify Specific Learning Disabilities, researchers have suggested that a comprehensive evaluation be conducted when determining special education eligibility under the category of Specific Learning Disabilities (Berninger, 2006; Flanagan, Ortiz, Olfonzo, & Dynda, 2006; Hale, Kaufman, Naglieri, & Kavale, 2006; Kavale, Kauffman, Bachmeier, & LeFever, 2008; Wodrich, Spencer, & Daley, 2006). The comprehensive evaluation includes both RTI and the administration of individually administered cognitive and academic achievement tests. The methods provided with RTI allow school psychologists to examine students' response to scientific, research based intervention (Flanagan et al; Hale, et al). If the student does not respond to intervention, a comprehensive evaluation will address the issue of the basic psychological processes as required by the definition of Specific Learning Disability.

Kavale and Flanagan (2007) has suggested an alternative model for assessing Specific Learning Disabilities within an RTI framework that includes cognitive and

academic assessment, however, it was unclear how interventions were implemented, documented, and analyzed within their model. Hale (2006), on the other hand conceptualized the comprehensive evaluation as all students receiving Tier I, where there is standardized scientific-based instruction and curriculum-based measurement, Tier II is individualized intervention employing the problem-solving RTI approach using single-subject experimental designs, and Tier III being special education services. Between Tier I and Tier III, a comprehensive evaluation will be conducted that utilizes standardized assessments, including the administration of an intelligence test. However, these models are only hypothetical in nature and it is unclear from the literature whether or not states are implementing them.

Current Practices

Since the implementation of RTI, many studies have examined how the practice of school psychology has changed, and one study has examined the training experiences of school psychologists as it relates to RTI. Hosp and Reschly (2002) found that most school psychologists spend between one half to two thirds of their time engaged in activities related to eligibility, however the assessment practices varied depending on the part of the country they are employed. In the Northeast and Mid-Atlantic areas more projective measures are used and more time was spent conducting direct interventions, while in the South Atlantic and East South Central areas more measures of intelligence and achievement were used. Those in the West North Central and East South Central areas were more likely to use duration and time interval recording, as well as functional behavior assessments. However, these authors found that no matter what region one is

employed, school psychologists would prefer to spend equal time between assessments, interventions, and consultations.

Sullivan and Long (2010) examined training practices of school psychologists as it relates to RTI. They found that 92.3% of respondents had received some training on RTI, with 76.7% reported receiving training at conferences or workshops, 51.7% at site-based in-services, 30.6% through graduate coursework, and 20.9% received training through supervised fieldwork. Those who have been working in the field for less than five years were more likely to receive training through graduate coursework (58.79%) and supervised field experience, while those who have been practicing more than five years tended to gain training experiences through on-site in-services. When examining only graduate coursework, less than 12% of those practicing more than 5 years received training through the coursework, whereas for those working less than 5 years, 58.79% indicated that they received training through graduate coursework.

A study by Sullivan and Long (2010) found that a majority of school psychologists who are at schools that have implemented RTI are involved in interventions, though most reported spending less than a quarter of their time engaged in academic interventions. Sullivan and Long also found that for a majority of school psychologists, the implementation of RTI has increased the amount of time they spend on academic interventions, whereas only 30% of school psychologists said that it made no impact on time committed to academic interventions. Just over half of the school psychologists at sites implementing RTI stated that there was a decrease in the number of special education referrals, while 40.7% saw no change and 6.5% saw an increase in special education referrals.

Summary

During the 2007-2008 school year, approximately 39% of students receiving special education services received it under the category of Specific Learning Disability, making it the largest of the eligibility categories. Specific Learning Disabilities were not recognized by the federal government as a category for special education and therefore funding until 1975 with the passing of Public Law 94-142. At that time eligibility was determined using the ability-achievement discrepancy model. In 2004 with the re-authorization of the Individuals with Disabilities Education Improvement Act of 2004, RTI was allowed to be used to determine Specific Learning Disabilities. RTI represents a paradigm shift away from the traditional test and place model. With the paradigm shift, school psychologists should be spending more time within the consultation role and less time conducting assessment. However, no research has examined the role of the school psychologist and how their roles would vary depending on the model that is used (ability-achievement discrepancy Model, RTI, or combination of the models).

CHAPTER 3

METHODOLOGY

Introduction

The Individuals with Disabilities Education Improvement Act of 2004 set the stage for RTI by allowing school districts to choose which model is to be used in the identification of Specific Learning Disabilities; the ability-achievement discrepancy model or an alternative model (Dykeman, 2006). Since the reauthorization of IDEIA (2004), the RTI model appears to be replacing the ability-achievement discrepancy model and has become the predominant method for assessing specific learning disabilities; being adopted or in the process of being adopted by more than half of the states across the United States of America (Berkley, Bender, Peaster, & Saunder, 2009).

The purpose of this study was to investigate the differences between the models in terms of initially identifying students under the category of Specific Learning Disabilities. This study examined which model is the most prevalent, and how current practices differ depending on the model the school psychologist is utilizing. It also examined what school psychologists' view as barriers to RTI implementation. It further examined the training experiences as it relates to the different components of RTI.

Research Questions

The following research questions will guide the proposed study:

- Which assessment model (RTI, ability-achievement discrepancy, combination of models, or alternative models) is most prevalent among school psychologists for evaluating suspected Specific Learning Disabilities?

- Do assessment practices differ among school psychologists who utilize RTI, ability-achievement discrepancy, combination models, and alternative models?
- What do school psychologists view as the barriers to implementing RTI effectively within a school setting?
- To what extent does RTI training provided through school districts, professional conferences, self-guided readings, graduate coursework, internship, and webinars align with school psychologists' current practices?

Research Hypotheses

It is hypothesized for question one that a combination RTI and ability-achievement discrepancy models is being used by a majority of school psychologists

It is hypothesized for question two that there will be significant relationships between current practices and the assessment model one is working under. It is hypothesized that school psychologists who utilize an RTI model spend more time on activities related to universal screening, interventions, and progress monitoring, are more likely to administer curriculum based measures, and spend less time administering standardized cognitive and academic achievements than school psychologists who utilized an ability-achievement discrepancy model or other models. It is further hypothesized that school psychologists who utilize an RTI model conduct fewer initial evaluations for Specific Learning Disabilities than school psychologists who utilize other models.

Question three will be addressed by the analysis of the self-report regarding the barriers to implementing RTI.

It is hypothesized for question four that the majority of school psychologists received training through their local school district on matters related to the different components of RTI. It is further hypothesized that school psychologists will rate the training they received through conferences as being better than the training they receive through other environments.

Participants

The sample for this study was drawn from current members of the National Association of School Psychologists (NASP) who are currently practicing school psychologists and are credentialed as Nationally Certified School Psychologists (NCSP).

Sampling Plan

A simple random sample was used. This method was appropriate since the participants were obtained through an online database on the National Association of School Psychologists website that contained the e-mail addresses of school psychologists who currently hold NCSP status and are currently listed as “active”. The database consisted of 10,292 active members from across the United States of America. To hold NCSP status a school psychologist must have completed 60 graduate semester hours or 90 graduate quarter hours of study in school psychology with at least 54 graduate semester or 81 graduate quarter hours being exclusive of credit for the supervised field internship experience; complete a 1200 hour internship in school psychology with 600 hours in a school setting, or if graduating prior to December 31, 1994 from a program that did not offer a 1200 hour field experience, complete a internship seminar at a university and have a credentialed school psychologist supervise; and have a passing score of 660 (if taken before September, 2008) or 168 (if taken after September, 2008) on

the School Psychologist Praxis II Examination. In addition, once NCSP status is obtained, it must be renewed every 36 months, which consists of 75 contact hours of continuing professional development (CPD), 10 of which must be obtained through the National Association of School Psychologist (NCSP) and/or the American Psychological Association (APA) approved providers and contain three CPD hours in ethical practice and legal regulation of school psychology.

A power analysis was conducted using a sample size calculator provided by Raosoft.com. Based on a sample size of 10,292, a margin error of 5%, a confidence level at 95%, and a response distribution of 50%, the calculated sample size is 372 participants. Due to response rate reported by Birnholtz, Horn, Finholt, and Bae (2004), of about 40%, 1200 participants were expected to be surveyed.

Participants in this study consisted of school psychologists who are currently employed within a kindergarten through twelfth grade setting in the United States of America. Individuals who are practicing in another setting or are not currently practicing were excluded from sampling frame that was obtained through the NCSP database on the NASP website prior to selecting the sample. The setting of primary employment was obtained through a screening question at the beginning of the survey, while those who are currently practicing outside of the United States were not included in the NCSP database. If participants indicate they are not in a school setting, they were unable to complete the survey.

SPSS Random Numbers Generator was used to select the 1200 individuals to be surveyed. A total of 835 e-mail addresses were available. Out of the 835 e-mails sent, 46 were undeliverable, six individuals responded that they work with a different population

or are retired, and one person responded that they could not access the survey, resulting in a total of 782 potential participants. A total of 140 participants completed the survey, for a response rate of 17.9% and a margin of error of 8.23%. Participants were 71.4% female, 74.3% Caucasian, 49.3% holding an Education Specialist Degree, and 41.4% working in a suburban setting. The sample mirrored the results obtained from the NASP National Membership Study in 2010. According to that survey, 78.1% of school psychologists working in the field are female, 90.7% are Caucasian, 45.7% hold Education Specialist Degrees, and 43.4% work in suburban setting.

Instrumentation

A survey developed by the researcher examined training, how the training aligned with current practices, time spent participating in administering, analyzing and utilizing data from universal screening, developing and implementing interventions, conducting and analyzing progress monitoring, determining intervention fidelity, and administering curriculum based measures, and standardized test of intelligence and academic achievement. It also examined whether or not fidelity is measured and if so, how it is measured for universal screening/benchmarking, intervention implementation, progress monitoring, and evaluating intervention responsiveness. The survey further examined the barriers to implementing RTI within a school setting.

Section one consisted of questions regarding where training occurred and satisfaction with the training received as it related to the alignment of current practices within a school setting. The satisfaction with training experiences was evaluated using a 4 point Likert scale consisting of the following response options: excellent, good, fair, poor, and an option that stated did not cover. This section also contained two open ended

questions that asked about what the participants found useful and what they disliked with regards to the training experiences as it relates to their current practices.

The second section examined the last universal screening period and asked school psychologists to estimate the number of hours they spent administering universal screening probes, analyzing data from the universal screening probes, and utilizing the data from the universal screening probes for decision making. Section three examined the percentage of initial Specific Learning Disability evaluations for which the school psychologist participated in the following activities: developing interventions, implementing interventions, conducting progress monitoring, analyzing progress monitoring data, determining intervention fidelity, administering standardized test of intelligence, administering standardized tests of academic achievement, and administering curriculum-based assessments. This section also included one open ended question that attempted to get at the details of the eligibility criteria and assessments that are being conducted. It also included a question asking for an estimate of the number of completed Specific Learning Disability cases by the end of the 2011-2012 school year.

The fourth section asked the school psychologist how many schools they are currently servicing. This section also included questions regarding universal screenings, interventions for academic difficulties, progress monitoring, and evaluating intervention response. For each area, the participant was asked whether or not their schools participate. If the participant answered yes, they were then asked if fidelity (consistency and integrity) were measured. If they noted that fidelity is measured, they were then asked to check how it was measured (direct observations, inter-rater, self-report, post-interviews, post rating scales, or other), with an explanation of each being presented

above the question. This question allowed for multiple responses. This section also included an open ended question asking participants to describe the challenges to implementing RTI in their schools. Finally, this section included a list where the participants had to choose a statement that best described the types of interventions that are being conducted at their school: all students receive the same intervention, interventions are individually planned for every student, or a combination of the two. This question was used to determine whether the standard protocol or the problem solving protocol was being implemented.

Section 5 consisted of 11 demographic questions that covered age, gender, race/ethnicity, number of years in practice, educational level, year completed internship, membership in professional associations, employment setting, supervision of interns, type of schools servicing, and the model they are currently using.

Data Collection

A pilot study was conducted utilizing currently practicing school psychologists within the Clark County School District in Las Vegas, Nevada and school psychologists in Southern California. The Clark County School District is the fifth largest school district in the country and currently implements RTI as the sole eligibility model for identifying Specific Learning Disabilities. In California, they are currently utilizing the discrepancy model with some aspects of RTI. The school psychologists included in the pilot study were those working in primary and secondary levels. School psychologist interns and administrators were excluded from the pilot study. The pilot study was conducted using a one-on-one structured interview format, also called a think-aloud format. During each interview, the participant was asked to describe his or her thoughts

as he/she completed the survey in its final form, a web-based survey. The pilot study was looking for potential problems with the questions, the wording, the response choices, the skip patterns, and the directions. Each interview was tape-recorded so feedback could be reviewed and incorporated in the survey. After each structured interview, the participant was debriefed by follow-up questions being asked.

Data from the currently practicing school psychologists was obtained via an online survey utilizing SurveyMonkey. SurveyMonkey is an online survey research tool. It is a secure website that allows researchers to design surveys using a variety of question types such as multiple choice, matrix of choices, rating scales, text boxes, etc... It also provides PDF formatted paper surveys.

A total of two contacts were made with the participants through e-mail, with the second e-mail occurring two weeks following the first e-mail. Both contacts consisted of an e-mail that explained the study, a request for participation, a statement describing the incentive for participating in the study, which was a chance to win one of three twenty dollar gift cards to Amazon.com, and a link directing the participant to the secure web-site to complete the survey.

At the end of the survey, participants were offered to enter into the drawing. To do so, they entered their e-mail address, which was stored separately from the completed survey. To limit who received the second e-mail, those that completed the survey and entered their e-mail address were removed from the e-mail database. The survey remained open for four weeks after the second e-mail. The drawing for one of three Amazon.com gift cards was held three months following the closing of the survey. Participants were sent electronic gift cards directly from Amazon.com.

Data Analysis

The data analyses used in this study were comprised of summary statistics, crosstabulations, repeated measures analysis of variances, and qualitative analysis. Each of these analyses was conducted using IBM SPSS Standard GradPack, version 19.0 for Windows and Atlas.ti. Atlas.ti is a program that aides in coding data and creating models. It was used to code and annotate the finding provided by the participants. Based on the coded data, themes were built.

Survey data were entered directly into Microsoft Excel from SurveyMonkey. It included the participants' answers to all questions, as well as the demographic questions. Data was analyzed using basic survey statistics, and non-parametric and parametric statistics. Research questions 1 was addressed through descriptive statistics. Research question 2 was addressed through crosstabulation analyses and content analysis utilizing Atlas.ti. Research question 3 was addressed through content analysis using Atlas.ti. Research question 4 was addressed using repeated measures ANOVAS and content analysis utilizing Atlas.ti. Percentages were reported for all sections. Percentages were reported for the whole group as well as for the different models (ability-achievement discrepancy model, RTI model, combination ability-achievement discrepancy model, and alternative models).

Summary

Chapter 3 discussed the research methodology employed in the current study, which is a non-experimental survey research design. Also included in Chapter 3 were the research questions, proposed hypotheses, information on the participants, information on data collection procedures, and the statistical analyses that were conducted.

CHAPTER 4

RESULTS

Response Rate

The target population for this study was school psychologists listed online by the National Association of School Psychologists (NASP) as Nationally Certified School Psychologists (NCSP). Of the 1201 school psychologists holding the NCSP at the time of this study, 34.3 percent of e-mail addresses were unavailable or undeliverable, and seven indicated that they were either working with a different population, working in a non-school setting, were retired, or were unable to access the survey. This resulted in a final sampling frame of 782 school psychologists. Usable surveys were returned by 140, resulting in a total response rate of 17.9 percent.

Demographic Characteristics of the Survey Participants

Appendix A, Table 12 outlines the demographic characteristics, education and licensure attainment, professional association memberships, and the employment characteristics of school psychologists who participated in the study. Participants were predominately female, white or Caucasian, and between the ages of 25 to 34. Most hold an Education Specialist (Ed.S.) degree, School Psychology licensure or certification, are members of NASP, and are not members of the American Psychological Association. One hundred twenty participants have maintained the NCSP credential. Most participants completed their internship in 2006 or later and have practiced within a school setting for less than five years, predominantly in suburban, public school settings. Table 1 shows the number of schools served by participants. Eighty one percent served three or fewer schools during the 2011 to 2012 school year.

Table 1
Number of schools served by school psychologists

	n	%
1	29	23.6
2	49	39.8
3	22	17.9
4	9	7.3
5	14	11.4
Total	123	100.0

Note. Percentages listed are based on total number of question responses.

The number of participants who completed 9 or fewer, 10 to 19, and 20 or more evaluations to determine special education eligibility for a suspected Specific Learning Disability during the 2011 to 2012 school year is reported in Table 2. Although 41% of participants completed twenty or more evaluations, large percentages were also observed for the other two categories, suggesting a wide variation within the sample in the number of SLD evaluations completed. The most prevalent assessment model used for determining SLD eligibility was not significantly related to the number of completed SLD evaluations, $\chi^2(6, n = 119) = 10.930, p = .091$, suggesting that this general pattern was consistent across models (i.e., RTI, Discrepancy, Combination, or Alternative).

Table 2
Number of completed SLD cases by evaluation model

	0 – 9		10 – 19		20 +		Total	
	n	%	n	%	n	%	n	%
RTI	16	32.7	18	36.7	15	30.6	49	41.2
Discrepancy	3	14.3	4	19.0	14	66.7	21	17.6
Combination	15	37.5	9	22.5	16	40.0	40	33.6
Alternative	4	44.4	1	11.1	4	44.4	9	7.6
Total	38	31.9	32	26.9	49	41.2	119	100.0

Note. Percentages listed are based on total number of question responses.

Specific Learning Disability Assessment Models

The first research question sought to determine the most common assessment model being used when initially determining special education eligibility for a suspected Specific Learning Disability. Table 3 lists the number of participants using each of the four SLD assessment models. RTI was used to determine eligibility either as sole procedure or in combination with the analysis of ability achievement discrepancy data by 74.6% of participants and was the sole process used to determine eligibility by 41.0%. When RTI was used, procedures most commonly utilized a standard protocol or combination of problem solving and standard protocols. The problem solving method was used infrequently in isolation.

Table 3
Percentage of school psychologists using SLD assessment models

	<i>N</i>	<i>%</i>
RTI		
Problem Solving	2	1.6
Standard Protocol	17	13.9
Combination Problem Solving/Standard Protocol	31	25.4
Total	50	41.0
Discrepancy		
Individualized Interventions	0	0.0
Standardized Interventions	11	9.0
Combination Individualized/ Standardized Interventions	11	9.0
Total	22	18.0
Combination RTI/Discrepancy		
Problem Solving	1	0.8
Standard Protocol	17	13.9
Combination Problem Solving/Standard Protocol	23	18.9
Total	41	33.6
Alternative		
Processing Problem Solving	0	0.0
Processing Standard Protocol	2	1.6
Processing Combination Problem Solving/Standard Protocol	0	0.0
RTI/Processing Standard Protocol	1	0.8
RTI/Processing Problem Solving	0	0.0
RTI/Processing Combination Problem Solving/ Standard Protocol	3	2.5
RTI/Cross Battery Assessment Problem Solving	0	0.0
RTI/Cross Battery Assessment Standard Protocol	1	0.8
RTI/Cross Battery Assessment Combination Problem Solving/Standard Protocol	2	1.6
Total	9	7.4
Total	122	100

Current Practices

Regardless of the assessment model utilized, all participants were asked what a typical SLD evaluation consists of through open-ended questions that were analyzed using Atlas.ti. When examining the open ended questions, 14.0% of participants utilize

data obtained from universal screening during a typical SLD evaluation, 32.4% considered data from interventions with one participant stating that it is required, but not used to determine eligibility. Progress monitoring or RTI data and probes are utilized by 39.5% in the initial evaluations, although one participant stated that progress monitoring is required but is not done.

RTI Procedures Implemented

Table 4 reports the percentage of respondents reporting RTI components being implemented at their schools when examined by assessment model. Participants using RTI most frequently reported that their sites participated in all components. A significant relationship was found between assessment model and the percentage of respondents who reported that their sites evaluate intervention responsiveness, $\chi^2 (3, n = 122) = 7.923, p = .048$ and conduct progress monitoring, $\chi^2 (3, n = 122) = 11.882, p = .008$. Respondents whose sites utilized an RTI model were more likely to conduct progress monitoring and evaluate intervention response than those whose schools utilize a discrepancy model, a combination of RTI and discrepancy model or an alternative model. However, no statistically significant relationships were found between assessment model and the proportion of participants who reported that their schools administer universal screeners, $\chi^2 (3, n = 122) = 3.283, p = .350$, or provide academic interventions, $\chi^2 (3, n = 122) = 6.076, p = .108$.

Table 4:

Percentage of respondents reporting RTI component implementation at their schools

	RTI		Discrepancy		Combination		Alternative	
	N	%	n	%	n	%	n	%
Universal Screening	41	23.3	17	27.4	34	25.6	8	25.0
Interventions	50	28.4	22	35.5	38	28.6	9	28.1
Progress Monitoring	46	26.1	13	21.0	34	25.6	8	25.0
Intervention Response	39	22.2	10	16.1	27	20.3	7	21.9
Total	176	100.0	62	100.0	133	100.0	32	100.0

Fidelity Monitoring

Table 5 lists the percentage of respondents who reported that their schools monitor the fidelity with which RTI procedures are implemented in their schools. Overall, no greater than 30 percent of respondents indicated that their school monitored procedural fidelity when implementing any specific RTI component. Comparison of assessment models revealed that RTI was associated with a largest percentage of participants reporting that their sites monitor procedural fidelity for universal screening, interventions, and progress monitoring. Combination RTI and ability-achievement discrepancy models were associated with a greater percentage reporting that their sites monitor procedural fidelity for evaluating intervention response. Ability-achievement discrepancy was associated with the lowest percentage of participants reporting that their sites monitor procedural fidelity for universal screening, interventions, and evaluating intervention response. Alternative models were associated with the lowest percentage of respondents reporting that their sites monitor procedural fidelity when conducting progress monitoring.

Table 5:
Percentage of sites that monitor fidelity by model

	Universal Screening (N=105)		Interventions (N=121)		Progress Monitoring (N=102)		Intervention Response (N=81)	
	n	%	n	%	n	%	n	%
RTI	15	14.3	18	14.9	11	10.8	7	8.6
Discrepancy	2	1.9	2	1.7	4	3.9	2	2.5
Combination	10	9.5	12	9.9	8	7.8	9	11.1
Alternative	4	3.8	3	2.5	3	2.9	3	3.7
Total	31	29.5	35	28.9	26	25.5	21	25.9

Note. Percentages listed are based on total number of participants that monitor fidelity of each model component.

Appendix B, Table 13 lists the percentage of respondents who report that implementation fidelity monitoring occurs in their schools. Direct observation was the most common method for measuring fidelity when administering universal screening and when measuring intervention responsiveness. When monitoring fidelity while implementing interventions, direct observations and self-report were utilized by the same number of participants.

Self-reports provided by the person conducting an intervention is the most common method for monitoring fidelity when conducting progress monitoring during interventions. Other areas included “I don’t know”, “teacher’s word”, “submission of data and resulting graphs”, “data analysis graphs and trend lines”, “data and graphs”, administrator sign off”, and “test scores, measures of specific skills”.

Universal Screening

The number of hours spent participating in the different aspects of universal screening (administering, analyzing, and utilizing) is presented in Table 6. The largest proportion of participants spend between zero and five hours administering and analyzing universal screening data, however a larger proportion of participants spend between 6 to

10 hours per week utilizing the data obtained from universal screening. Results indicated no significant relationships between type of model used and the number of hours participants spent directly administering universal screeners, $\chi^2 (6, n = 40) = 5.295, p = .507$, analyzing universal screening data, $\chi^2 (6, n = 40) = 10.337, p = .111$, or utilizing universal screening data, $\chi^2 (6, n = 40) = 9.806, p = .133$.

Table 6
Hours participating in activities related to universal screening

	RTI		Discrepancy		Combination		Alternative		Total	
	n	%	n	%	n	%	n	%	n	%
Administering										
0-5	12	66.7	5	83.3	7	50.0	1	50.0	25	62.5
6-10	2	11.1	0	0.0	2	14.3	1	50.0	5	12.5
≥ 11	4	22.4	1	16.7	5	35.7	0	0.0	10	25.0
Analyzing										
0-5	5	27.8	4	66.7	7	50.0	0	0.0	16	40.0
6-10	8	44.4	2	33.3	3	21.4	0	0.0	13	32.5
≥ 11	5	27.8	0	0.0	4	28.6	2	100.0	11	27.5
Utilizing										
0-5	4	22.2	2	33.3	4	28.6	0	0.0	10	25.0
6-10	10	55.6	4	66.7	4	28.6	0	0.0	18	45.0
≥ 11	4	22.2	0	0.0	6	42.9	2	100.0	12	30.0

Table 7 lists the percent of SLD cases participants spent engaging in the different activities related to RTI. Participants were asked in what percent of cases they participate in developing intervention, implementing interventions, progress monitoring, analyzing intervention results, and determining intervention fidelity. Examination of Table 9 shows that the majority of school psychologists using all assessment models did not participate in implementing interventions, progress monitoring, or determining intervention fidelity. However, the majority of school psychologists did participate in analyzing intervention outcomes in 65 to 100 percent of their SLD evaluations. The RTI assessment group

participated in developing interventions in 65 to 100 percent of cases. Assessment model did not significantly impact the percentage of cases in which participants developed interventions, $\chi^2 (9, n = 118) = 9.160, p = .423$, implemented interventions, $\chi^2 (9, n = 117) = 6.854, p = .652$, determined intervention fidelity $\chi^2 (9, n = 116) = 8.881, p = .448$, or progress monitoring $\chi^2 (9, n = 117) = 11.930, p = .217$. Assessment model did significantly influence the percentage of cases in which participants analyzed results from interventions, $\chi^2 (6, n = 116) = 16.015, p = .014$, with a higher percentage of participants observed among those utilizing RTI and combination models.

Table 7

Percent of SLD cases participants spent engaging in activities related to RTI

	RTI		Discrepancy		Combination		Alternative		Total	
	n	%	n	%	n	%	n	%	N	%
Developing Interventions										
0	7	14.3	9	45.0	9	22.5	3	33.3	28	23.7
5-30	17	24.7	4	20.0	15	37.5	3	33.3	39	33.1
3-60	4	8.2	1	5.0	2	5.0	0	0.0	7	5.9
65-100	21	42.9	6	30.0	14	35.0	3	33.3	44	37.3
Implementing Interventions										
0	27	55.1	13	65.0	24	60.0	5	62.5	69	59.0
5-30	11	22.4	6	30.0	5	12.5	2	25.0	24	20.5
35-60	9	18.4	1	5.0	8	20.0	1	12.5	19	16.2
65-100	2	4.1	0	0.0	3	7.5	0	0.0	5	4.3
Analyzing Interventions										
5-30	11	22.4	7	35.0	11	28.2	2	50.0	31	26.7
35-60	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
65-100	31	63.3	4	20.0	21	53.8	2	25.0	58	50.0
Progress Monitoring										
0	26	53.1	17	85.0	22	55.0	4	50.0	69	59.0
5-30	17	34.7	3	15.0	10	25.0	4	50.0	34	29.1
35-60	3	6.1	0	0.0	5	12.5	0	0.0	8	6.8
65-100	3	6.1	0	0.0	3	7.5	0	0.0	6	5.1
Determining Intervention Fidelity										
0	19	38.8	12	60.0	18	46.2	4	50.0	53	45.7
5-30	22	33.9	5	25.0	11	28.2	3	37.5	41	35.3
35-60	1	2.0	1	5.0	5	12.8	0	0.0	7	6.0
65-100	7	14.3	2	10.0	5	12.8	1	12.5	15	12.9

Participants were asked to describe the percentage of cases in which they administer standardized academic achievement tests, standardized tests of intelligence, and curriculum based measures (Table 8). The majority of participants administered standardized tests of academic achievement and standardized tests of intelligence between 65 to 100 percent of the time, regardless of assessment model utilized. A greater percentage of those using the ability-achievement discrepancy model and the

combination RTI and ability-achievement discrepancy model administered standardized tests of academic achievement between 65 to 100 percent of the time, while a larger percentage of those in the ability-achievement discrepancy group administered standardized tests of intelligence between 65 to 100 percent of the time. The majority of participants using all assessment models did not administer curriculum-based measures as part of their evaluations to determine SLD eligibility. Assessment model was not related to the proportion of participants who used academic achievement tests $\chi^2 (9, n = 118) = 9.535, p = .389$, intelligence tests, $\chi^2 (9, n = 118) = 10.985, p = .277$, and curriculum based measures, $\chi^2 (9, n = 117) = 12.185, p = .203$. Based on the open ended questions, 21 participants stated that curriculum based measures are a part of their initial evaluations for Specific Learning Disabilities, with two participants stating that they are not always administered.

Table 8

Percent of school psychologist who administer the assessments during initial Specific Learning Disability evaluations

	RTI		Discrepancy		Combination		Alternative		Total	
	n	%	n	%	n	%	n	%	n	%
Academic Achievement										
0	13	26.5	4	19.0	4	10.0	2	25.0	23	19.5
5-30	16	32.7	4	19.0	11	27.5	3	37.5	34	28.8
35-60	4	8.2	1	4.8	6	15.0	0	0.0	11	9.3
65-100	16	32.7	12	57.1	19	47.5	3	37.5	50	42.4
Total	49	41.5	21	17.8	40	33.9	8	6.8	118	100.0
Intelligence										
0	4	8.2	2	9.5	2	5.0	2	25.0	10	8.5
5-30	16	32.7	3	14.3	11	27.5	3	37.5	33	28.0
35-60	8	16.3	1	4.8	4	10.0	0	0.0	13	11.0
65-100	21	42.9	15	71.4	23	57.5	3	37.5	62	52.5
Total	49	41.5	21	17.8	40	33.9	8	6.8	118	100.0
Curriculum Based Measures										
0	22	44.9	15	75.0	20	50.0	4	50.0	61	52.1
5-30	16	32.7	5	25.0	9	22.5	3	37.5	33	28.2
35-60	3	6.1	0	0.0	6	15.0	1	12.5	10	8.5
65-100	8	16.3	0	0.0	5	12.5	0	0.0	13	11.1
Total	49	41.8	20	17.1	40	34.2	8	6.8	117	100.0

Participants were asked through an open-ended question what a typical initial SLD evaluation entails within their current employment setting. Appendix C, Table 14 displays the responses of the participants. Some sort of academic achievement tests are administered by 81.5% of participants, with 5.3% using achievement tests when necessary. One participant (0.8%) stated that academic testing is required but is not completed. Cognitive tests are administered by 77.2% of participants, with nine participants (7.9%) administering them only when needed and one (0.8%) administering it only when a Processing Disorder is suspected. Curriculum based measures are included as part of their initial evaluations for specific learning disabilities by 18.4% of participants, with 1.8% using them intermittently. Other types of assessments that are

utilized include processing assessments (27.2%) with 2.5% using them only when needed, adaptive assessments (3.5%) with one participant (0.8%) administering it as needed, and behavior/social emotional assessments (29.8%). One participant (0.8%) uses diagnostic assessments; one participant (0.8%) used targeted assessments based on the skill deficits, and one participant (0.8%) conducts dynamic assessments.

Behavioral/social emotional assessments are conducted on an as needed basis by 7.9%, and 3.5% informally assess behavior/ social emotional functioning. Other areas that are assessed included communication (6.1%), with 2.6% assessing expressive/ receptive language, 2.6% evaluating speech/language and 0.8% assessing communication in general.

Other areas that are included in the initial evaluation include looking at appropriate instruction (0.8%) and examining classroom performance (18.4%). Areas that are included in classroom performance are academic progress, grades, and work samples. Participants stated that they also review information provided (1.8%) and do folder reviews (35.1%) that include looking at disciplinary records, attendance, school performance, and English Language Instruction. District and state testing is included in the evaluations by 17.5% of participants, with 11.4% utilizing state testing. Outside information is considered by 1.8% and 1.8% look at English Language Learner status.

Initial evaluations also consist of interviews (64.0%) with the parent (21.1%), student (25.4%), and teacher (25.4%). It also includes observations (47.4%), with 1.8% stating they are only completed when needed and 0.8% stating that a special education teacher completes interviews. Observations are required but not completed by 0.8% of participants. Other areas that are included in the initial evaluation for a specific learning

disability are health assessments (14.9%), the examination of gross and fine motor ability (5.3%), and background history including behavior and social (20.2%). One participant (0.8%) said they look at exclusionary factors.

One participant stated that they do not conduct testing personally, but diagnosticians do the testing. Because school psychologists do not test, he/she is unaware of what is involved in a typical evaluation for special education under the category of specific learning disability. Another participant stated that she works at an independent school and therefore special education services are not available and she does not conduct evaluations. This participant does participate in conducting universal screenings three times per year, helps to identify those students who require interventions, and monitors those students who are currently receiving interventions.

Barriers to Implementing RTI

Table 9 describes the most common responses stated by participants when asked to describe barriers to RTI implementation within their schools. The most commonly stated barrier to implementing RTI was fidelity/ integrity (48.7%) of decision making (6.8%), intervention monitoring (6.8%), intervention implementation (16.2%), progress monitoring (10.3%), and consistency across different teachers (0.9%). One participant (0.9%) stated that even though no official paperwork is completed, the team is active in discussing and acknowledging fidelity and integrity of interventions. Other responses included that “there is no consistent decision making/problem solving”, and that there is a problem with “using the data to inform intervention throughout intervention”. It was also reported that there is a “lack of fidelity of interventions”, a lack of “checking for treatment fidelity and integrity”, a lack of “competent staff/interventionists to perform

interventions with fidelity”, there is “inconsistent use of good progress monitoring techniques” and not “tracking and monitoring all students on a regular basis”. There is a lack of “consistent implementation of interventions” and “teacher and interventionists [not] following the plan that the problem solving team designs and collecting the progress monitoring data as expected”. Only one participant stated that they look at “aspects of integrity of interventions... [but] do not collect formal data or direct observation(s) of staff implementing interventions... [though they] consult with each other frequently so they are very cognizant of this”.

Table 9:
Barriers to implementing RTI

	n	%
Fidelity/Integrity	57	48.7
Fidelity/Integrity- Decision Making	8	6.8
Fidelity/Integrity - Intervention Monitoring	8	6.8
Fidelity/Integrity - Intervention Implementation	19	16.2
Fidelity/Integrity - Progress Monitoring	12	10.3
Fidelity/Integrity - Consistency Across Teachers	1	0.9
Buy-In	48	41.0
Buy-In – Teachers	28	23.9
Buy-In - Teacher Mind Set	6	5.1
Buy-In - Teachers at Secondary Level	6	5.1
Buy-In- Administrators	9	7.7
Buy-In- Parents	2	1.7
Lack of Understanding	18	15.4
Lack of Understanding- Concept of RTI	3	2.6
Lack of Understanding- Disabilities	2	1.7
Lack of Understanding- Interventions	2	1.7
Lack of Understanding- RTI Process	7	6.0
Staff	31	26.5
Staff- Not Enough Staff	11	9.4
Staff- Staff to Implement Interventions	20	17.1
Time	31	26.5
Time- For Interventions	12	10.3
Time- Implementing RTI	2	1.7
Time- Trainings	2	1.7
Time- School Psychologists to Hold Trainings	2	1.7
Workload	7	6.0
Materials	23	19.7
Cost	13	11.1
Research-Based Interventions	28	23.9
Core Instruction at Tier I	6	5.1
English as a Second Language	1	0.9
Pressure to Place Students	1	0.9
Assessment	3	2.6
Measurement	1	0.9
RTI Model Itself	7	6.0
Lack of Guidance	5	4.3
Lack of Training	23	19.7
Eligibility Decisions and Determinations	4	3.4

Buy-in (41.0%) was the next most common barrier to implementing RTI. The majority reported that teacher buy-in was a big problems (23.9%), with 5.1% stating that

teacher mind set regarding RTI and eligibility was an issue and 5.1% stating that teachers who taught at a secondary level did not buy in to RTI. There is a lack of buy in from administrators (7.7%) percent lacked buy-in from administrators and a lack of buy-in from parents (1.7%). Teachers and administrators think “it’s a hoop to jump through to get into special education” and “view it as a barrier to special education”. Parents and teachers “want to move forward with a SLD evaluation without first providing interventions because they philosophically believe SLD is a disability that can just be tested” and “parents prefer evaluation over RTI process”.

To go along with buy-in, there is a lack of understanding (15.4%). There is a lack of understanding of the concept of RTI (2.6%), of disabilities (1.7%), of interventions (1.7%), and of the process (6.0%). There is “stakeholder disagreements of what RTI is and what it should look like”, “teachers do not understand the concept of RTI”, there is a lack of “knowledge of the process” and “understanding the documentation paperwork and how to fill it out correctly”, teachers lack “understanding of special ed/disabilities”, there is “poor understanding of the purpose of interventions” and teachers do not understand “the difference between a strategy and evidence based intervention”.

There is also a lack of guidance (5.3%). There is inconsistent communication between the district level and the school level. There is a lack of guidance regarding compliance expectations and there are other priorities in the district. There is also a lack of agreement between the two on what is research based interventions, with one school psychologist stating “the district doesn’t approve of the interventions we use”.

There is also a lack of training (19.7%). There is a lack of professional development or training for both teachers and school psychologists’ implementation of

RTI. Areas identified include identifying deficit areas and setting goals, conducting progress monitoring and universal screening probes, implementing interventions, adjusting interventions after collecting data, and looking at data and making decisions. Several participants stated that they do not “have the time to train the teachers themselves, and teachers are not encouraged to obtain [professional development] on RTI”.

Staff (26.5%) and time (26.5%) were the next most commonly stated barriers. There is not enough staff on hand to do what is necessary to conduct RTI (9.4%) and more specifically to do interventions (17.1%). There is a “lack [of]... personnel to complete interventions” and there are “not enough people to manage the number of intervention groups needed”. When it comes to time, schools lacked time for interventions (11.1%), implementing RTI (10.3%), and trainings (1.7%), and school psychologists do not have the time to help implement RTI and train teachers (1.7%). There is “a lack of time to provide interventions to children”, “classroom teachers don’t have time for progress monitoring, it doesn’t get accomplished and there are no other resources” and there is not enough “time in the school day set aside solely for intervention”.

This goes along with another area, workload (6.0%). Participants feel overwhelmed with either the changing expectations or have too many students on their caseload to be able to participate in RTI. Teachers view RTI as “another thing on their plate” or added work.

Other areas identified as barriers to implementing RTI are materials (19.7%) and cost (11.1%), with 2.6% stating the cost of materials were an issue. Participants

commented that they had “limited resources” that include money, staff, material, time, and space”, the interventions cost too much, and there is no support or personnel to implement the interventions. Several participants stated that “with budget cuts, their staffing numbers have been reduced, resulting in less availability for staff to conduct interventions. For this reason, we have not been able to expand our RTI program within the district as much as we would have liked”.

Another big area that was stated as a barrier was the lack of research-based interventions (23.9%). There is difficulty “finding and using scientifically-based interventions” with some adding the statement “that are affordable to schools”. “System wide interventions are lacking”, “a variety of interventions [are lacking]”, there are “very little interventions for math” and there is a “lack of individualized interventions Problems with progress monitoring were reported by 3.4% of participants. Teachers are “unsure of what skills they are measuring...” and there is a lack of “appropriate available progress monitoring tools”.

Problems with core instruction at Tier I was stated by 5.1% of participants. Teachers have difficulty “differentiating instruction within [the] general ed[ucation] setting”. There is a “lack of Tier I success” with one commenting that it “leads to too many students requiring interventions”. One participant (0.1%) stated that there is a large focus on tier II instead of tier I. One participant stated that there is also a lack of generalization of skills taught. This participant stated that “students are in interventions and making progress but are doing poorly in their classrooms and on grade level work”.

Another area that was deemed as a barrier to the implementation of RTI is eligibility decisions and determinations (3.4%), which includes the over identification of

students for whom English is a second language (0.9%), and pressure to place students in special education (0.9%). There is a problem “getting the schools to understand that not all children are all ‘regular education’ or ‘special education’. There are some students that lie within the ‘yellow spectrum’ (working within regular education with interventions) that do not fall within regular ed[ucation] or special ed[ucation]”.

To go along with this concept are problems with assessment (2.6%) and measurement (0.9%). “RtI does not compare to a full psycho-educational assessment” and “sometimes what counts cannot be measured”. There is also a problem of integrating RTI and assessment data. One participant stated that he/she does not have clarity on how to integrate the two when conducting a special education evaluation.

The next area that was brought up by participants as a barrier to RTI is problem with the RTI model itself (6.0%). This area covered a wide range of concerns and ties back into other areas that were stated as concerns. One participant commented that “RTI is from the special education realm, not regular education”. Another participant stated that “RtI is viewed as a general education initiative and not as a way to deliver high quality instruction to all students. Students who are in special education no longer receive research-based interventions or progress monitoring.” While another participant commented that “It seems in practice that simply knowing a child has not ‘responded’ to interventions is not enough. Processing speed, memory, fluid reasoning, etc have provided teachers with equally (not better) useful information. I think we need a model that takes both RTI and cognitive learning styles into consideration.” Finally, one school psychologist stated “I think it is best summed up by the saying ‘we have moved from a WAIT TO FAIL to a WATCH THEM FAIL model’”.

Training

Participants were asked where they received training in RTI and how they viewed this training through open ended question and rating scales. Repeated Measures ANOVA's were conducted to investigate differences in perceived quality across different training experiences. Open ended questions were analyzed using Atlas.ti.

Participants received RTI training in many different environments. Table 10 shows that a large percentage of participants received training through their district of employment (76.3%) professional conferences, (83.7%), and self-guided readings (64.9%), whereas a smaller proportion completed webinars (19.5%). Graduate courses and internship were excluded from this analysis since all participants have received training through these environments.

Table 10:
Environment where participants received training

	Yes		Total
	n	%	n
School District	106	76.3	139
Conferences	113	83.7	135
Self-Guided Readings	87	64.9	134
Webinars	26	19.5	133

Appendix D, Table 15 reports the means and standard deviations of perceived quality of training as a function of training modality (graduate coursework, internship, district of employment, professional conferences, self-guided readings, and webinars) and shows training environments were rated similarly in their alignment with current practices within a school setting. Perceived quality ratings did not differ significantly between the six training environments when training content consisted of determining special education eligibility under an RTI assessment model, $F(4, 61) = .946$, $p = .444$,

administering universal screenings $F(5, 66) = .363, p = .872$, analyzing universal screening data $F(5, 71) = .866, p = .508$, and utilizing universal screening data for making decisions $F(5, 68) = 1.536, p = .190$, developing effective interventions $F(5, 74) = .440, p = .819$, writing intervention plans $F(5, 63) = .993, p = .446$, changing intervention plans when needed $F(4, 68) = .689, p = .596$, providing direct interventions, $F(4, 57) = .546, p = .702$, monitoring intervention fidelity $F(4, 56) = 1.278, p = .290$, and documenting treatment implementation $F(4, 60) = 1.345, p = .264$.

Perceived quality differed significantly across training environments when training focused on identifying scientifically-based interventions and $F(5,68) = 2.540, p = .036$. Pairwise comparisons using Bonferoni corrections revealed that internship training received lower ratings than both professional conferences ($p = .018$) and self-guided readings ($p = .008$). School district professional development received lower ratings compared to both professional conferences ($p = .020$) and self-guided readings ($p = .010$).

Quality ratings did not differ across training environments for administering progress monitoring probes $F(4, 67) = .687, p = .604$, and graphing progress monitoring probes $F(4, 60) = 1.028, p = .400$. Significant quality differences were found between training environments for determining adequate progress $F(4, 65) = 2.660, p = .040$. Pairwise comparisons using Bonferoni corrections revealed that internship ratings differed significantly from conferences ($p = .026$) and self-guided readings ($p = .027$). Ratings for school district professional development differed from professional conferences ($p = .018$) and self-guided readings ($p = .020$). School psychologists rated their training through conferences and self-guided readings higher than the training they received through internship and school district provide profession development.

Training Strengths and Weaknesses

Participants were asked what they liked and disliked about the training they received (Table 11). The majority of participants mentioned interventions. Forty seven participants (41.2%) stated that interventions were addressed and they found that helpful. Areas that were noted as being addressed were intervention implementation, time frame, differentiating interventions and accommodations, selection of interventions, setting and writing intervention goals, and direct training in specific interventions. Thirty-three participants (30.0%) stated that their training lacked information regarding interventions, particularly implementation, planning and types of interventions.

Table 11:
Likes and dislikes regarding training experiences

	Likes n = 114		Dislikes n = 110	
	n	%	n	%
Interventions	47	41.2	33	30.0
RTI	18	15.8	21	19.1
Progress Monitoring	23	20.2	7	6.4
Universal Screening	16	14.0	2	1.8
Curriculum Based Measurement	6	5.3	1	0.9
Assessment	23	20.2	6	5.4
Social Emotional Assessment	10	8.8	22	20.0
Consultation and Collaboration Skills	19	16.7	4	3.6
Federal/ State Laws Guidelines	4	3.5	3	2.7
Eligibility Determination	6	5.3	3	2.7
Data Based Decision Making	10	8.8		
Practicum and Internship	8	7.0		
Number of Trainings			1	0.9
Level of Training			2	1.8
Providing Examples			1	0.9
Poor Instructors			3	2.7
Webinars			1	0.9
Focus of Instruction			2	1.8

To go along with interventions, participants commented on their training on RTI. Eighteen participants (15.8%) liked that their training covered RTI, including RTI

models, the steps, and one school psychologist stated that the training he/she received has “validated the work with RTI that we do in my county”. Twenty one participants (19.1%) stated that their training lacked in the area of RTI, especially in the area of implementation. One participant stated that he/she did not have “enough hands on RTI exposure”, and other participants stated that their training did not cover RTI at the secondary level.

Training participants received in regards to the components of progress monitoring was also stated as being both positive and negative. Twenty three participants (20.2%) stated that found their training useful in covering progress monitoring tools, determining what skill to progress monitor, administering progress monitoring probes, interpreting progress monitoring data, graphing progress monitoring data, and analyzing the data. Participants who were lacking training stated that there was no direct instruction regarding progress monitoring, there were “no classes available for specifically looking at data and tracking progress”, and that there is not enough focus on what is considered expected growth.

To go along with progress monitoring is universal screening. Sixteen participants (14.0%) noted that training involved developing, administering, scoring, and interpreting universal screeners, and emphasized their importance. It also covered the different types of screeners. On the other hand, one participant stated that training “did not emphasize the importance of screening measures” and another participant stated that they did not like their training in regards to universal screening.

Six participants (5.3%) stated that they liked the training they received in the administration and scoring of Curriculum Based Measures and they liked the training

they received utilizing AIMSweb. On the other hand, one participant (0.9%) stated that they received little training in Curriculum Based Measures.

Another area mentioned on both sides was assessment. Twenty-three participants (20.2%) stated that they had the formal assessment training, they had good exposure to commonly used assessments, and that they learned how to administer and interpret standardized tests. Six participants (5.3%) stated that they disliked the training they received in assessments. Participants stated that had very limited exposure to certain types of assessments (personality and scales other than the Wechsler), they came from programs that were anti-assessment or made fun of standardized testing, and they did not receive enough training in the interpretation of standardized tests.

Social emotional assessments and counseling were also mentioned. Twenty-two participants (20.0%) stated that their training lacked teaching counseling skills, as well as information regarding behavior management, functional behavior assessments and behavior plans, manifestation determinations, and psychological disorders. One participant stated that she would have liked “more direct supervision regarding our implantation of ABA principals”. Ten participants (8.8%) liked their training in regards to behavior analysis, behavioral interventions, and counseling with one participant (0.9%) stating that there was “excellent training in behavior analysis and cognitive (instructional)/behavior supports.”

Eligibility determination was mentioned as a positive by 5.3% of participants and a negative by 2.7% of participants. The areas noted as negative are qualifying students for special education services and not having clear parameters of when to do it. However, other participants stated that their training did provide “clear parameters for

SLD identification under RTI”. Ten participants (8.8%) stated that their training covered how to use data to make decisions and provided an understanding of the data based decision process.

Another area that was stated as both a like and dislike is training in consultation and collaboration skills. Nineteen participants (16.7%) stated that their training prepared them to work with colleagues in the school setting, while 3.6% of participants stated that their training did not cover how to teach teachers, how to deal with coworkers, and how to navigate within a school setting.

State and federal law and guidelines were mentioned as both. Four (3.5%) stated that their training covered legal requirements and laws, while 2.7% of participants stated that they did not receive training in special education laws as it relates to eligibility under RTI, and guidelines for special education services. One participant (0.9%) stated that they “did receive coursework related to special education law but we needed much more”.

Many other areas were noted where participants liked their training. Eight (7.0%) participants stated that they liked the practical experiences they received through either practicum or internship. It was also stated by several participants that they received a strong foundation in theory, understanding disabilities, and understanding the different models under RTI. They also liked the training they received regarding research that has been conducted. Several participants liked the training they received through the school district or other in-services.

There are many areas that participants disliked about their training. One participant (0.9%) stated that they are limited in the number of trainings they are allowed

to attend, several participants stated that the level of training is too low, too general, too theoretical, too low of expectations, and that there is too much repetition of information. Participants stated that their training lacked examples, was not applicable to the population they work with, the information provided was contradictory, and that the trainings were disorganized. When it came to instructors, participants noted that the instructors were poor, and that not all of them had experience working as school psychologists. One participant (0.9%) stated that webinars are “are really just marketing strategies for various universal screenings and not helpful for application in our district where there are huge budget concerns and no chance of paying for the services being advertised”. It was noted by participants that their programs were more clinical rather than academic and did not provide training in linking processing and academic deficits.

Summary

The purpose of this study was to see what models school psychologists are currently utilizing for the identification of specific learning disabilities, to identify the current practices of school psychologists, the barriers to the implementation of RTI, and to determine where school psychologists received their training and how they rated the training they received.

Results indicated that the majority of participants are utilizing either an RTI model or a combination RTI and ability-achievement discrepancy model. The majority of participants serve two schools and completed more than 20 specific learning disability cases, though no relationship was found between the model utilized and the number of cases completed.

The majority of participants reported that their sites conduct universal screenings, interventions, progress monitoring, and examine intervention responsiveness, but that fidelity is not monitored. No significant relationships were found for the model a school psychologist is working under (RTI, combination RTI and ability-achievement discrepancy model, ability achievement-discrepancy model, or an alternative model) and the proportion of school psychologists who reported that their sites participate in universal screening, or providing academic interventions. A significant relationship was found for the model a school psychologist is working under and the proportion of sites that progress monitor and sites that evaluate intervention responsiveness. No relationship was found for the model a school psychologist is working under and sites that monitor fidelity for universal screening, implanting interventions, progress monitoring, or evaluating intervention responsiveness.

Results also indicated no relationship between model utilized and the number of hours participants spend administering, analyzing, or utilizing universal screening. No relationship was also found between model utilized and the percentage of cases in which participants reported participating in developing or implementing interventions, administering tests of academic achievement, tests of intelligence, or curriculum based measures. A significant relationship was found between model utilized and the percentage of cases participants reported participating in analyzing interventions.

Barriers to implementing RTI within the school setting were noted to include fidelity/ integrity of decision making, intervention monitoring, progress monitoring, intervention implementation, and consistency across schools and teachers. It also includes a lack of buy in from teachers, administration, school staff, and parents, as well

as a lack of understanding regarding the concept of RTI, disabilities, interventions, and the process. There is also a lack of guidance from district and school level and there is a lack of training. Availability of resources was indicated as another barrier. This included staff, time, materials, cost, and research-based interventions and there are also problems with core instruction at Tier I. Other barriers to implementing RTI include eligibility decisions, assessment, and the RTI model itself.

In regards to training, results indicate that the majority of participants received their training through conferences. No significant results were found for where participants received their training and how they rated their training in the areas of administering, analyzing, and utilizing universal screening data, developing effective interventions, writing intervention plans, providing direct interventions, documenting treatment implementation, and administering and graphing progress monitoring probes. Statistically significant results were found for the areas of identifying scientifically based interventions and determining adequate progress, with those receiving their training through conferences and self-guided reading rating them as higher than through internship and school district provided professional development.

When asked what they liked and disliked about their training, participants stated training in interventions, progress monitoring, universal screening, assessment, counseling and dealing with behavioral difficulties, determining eligibility, consultation skills, and law as both positive and negative. The areas rated as positive include hands on experience, a strong foundation, and research. Areas disliked by participants were level of training, numbers of trainings, repetitive topics, not applicable to their job and the instructors that they had.

Chapter 5

DISCUSSION AND IMPLICATIONS

The implementation of RTI in many states has implications for the role, function, and training of school psychologists. The current study examined the professional practices used by school psychologists to identify Specific Learning Disabilities within different evaluation models, what their schools are do to implement RTI models, and the extent to which schools monitor the fidelity with which RTI is implemented within schools. It also examined perceived barriers to RTI implementation identified by school psychologists within their schools. School Psychologists' training related to RTI was also examined in an attempt to identify how practitioners are trained and their satisfaction with these experiences.

Chapter 5 discusses the results from the analysis of the raw data detailed in chapter 4. First, the research questions are addressed in sequence, followed by a summary and then the discussion and implications. This is followed by the limitations of the study, and then recommendations for future research.

Discussion

In this section, I discuss the findings related to each research question.

Research Question 1:

The first research question investigated which model is the most common Specific Learning Disability assessment model being used for initially assessing Specific Learning Disabilities. In this study, the majority of school psychologists utilize an RTI or combination RTI and ability-achievement discrepancy. This was followed by the ability-achievement discrepancy model. In this sample, the majority of school psychologists

utilize a blended problem-solving and standard protocol approach regardless of the model they use. Very few school psychologists solely utilize a problem-solving approach, even when working under an RTI model. This confirmed the findings by Berkely, Bender, Peaster and Sanders (2009) who found that, although the problem-solving model was preferred, the majority of states implementing RTI utilized a blended model.

The standard protocol approach allows for all students with similar problems to be provided with the same intervention, which allows for more control over fidelity of the intervention (Bender & Shores, 2007; Berkeley, Bender, Peaster, & Sanders, 2009; Fuchs, Mock, Morgan & Young, 2003), while the problem-solving approach utilizes interventions that are individualized for each individual (Christ, Burns, & Ysseldyke, 2005; Fuchs, Mock, Morgan & Young, 2003; Hale, Kaufman, Naglieri & Kavale, 2006). With the lack of resources and time within the school setting to provide appropriate interventions to all students, using a combination standard protocol approach and problem-solving approach allows teachers to provide interventions for a group of students at one time while still providing the individualized instruction that is needed.

Research Question 2:

The second research question investigated the current practices of school psychologists and whether or not they differ based on the Specific Learning Disability assessment model. In this study, the majority of school psychologists stated that universal screenings, interventions, and progress monitoring is conducted at their sites. Unlike Sullivan and Long (2010) who reported that school psychologists who are at RTI schools have increased the amount of time they spend on academic interventions, no group differences were found for administering or utilizing universal screening data,

providing academic interventions, determining intervention fidelity, for school psychologists developing or participating in the implementation of academic interventions, or school psychologists administering tests of academic achievement, administering tests of intelligence, or administering curriculum based measures. However, this study found that school psychologists who utilize an RTI model were more likely to progress monitor and participate in analyzing progress monitoring data. The reason for these differences may be the sample surveyed, or the wording of the questions. Differences could also be due to the specifics related to the interventions. This study separated out the individual components to RTI (developing interventions, implementing interventions, progress monitoring, determining intervention fidelity), whereas Sullivan and Long (2010) did not.

Studies that have looked at fidelity and treatment integrity found a range of responses from 1.9% always measuring to 10% always measuring and 50% sometimes measuring (Cochran & Laux, 2007; Cochran & Laux, 2008). This study found that under a third of school psychologists reported that their sites monitor fidelity for administering universal screeners, when examining intervention implementation or responsiveness, and when looking at progress monitoring. This study differed in the percentages that were reported finding a higher number of school psychologists reporting that fidelity is monitored, but it is still below 30%. The reason for these differences could include the population surveyed as well as the year the studies were conducted. With the implementation of RTI, there may be an increased awareness for integrity in all aspects relating to the intervention and progress monitoring. School psychologists may be taking a more active role in monitoring integrity or making sure it is monitored.

In this sample, no group differences were found among school psychologists who monitor fidelity. The most common method for measuring fidelity was direct observations in the areas of administration of universal screeners, intervention implantation, and intervention responsiveness. For progress monitoring, the most common method was self-report. Past studies have found that interviewing was the most commonly used method for monitoring fidelity, followed by teacher self-report, direct observations, and then post-rating scales (Cochrane & Laux, 2007; Cochrane & Laux, 2008). These differences may be due to district policy and the beliefs among administrators that school psychologists should be the one responsible for collecting the RTI data (Werts, Lambert & Carpenter, 2009).

The National Association of School Psychologists recommends SLD identification within a multitiered model (a three tier RTI model) that includes a comprehensive evaluation being conducted for all initial evaluations when a specific Learning Disability is suspected. It includes “measures of academic skills (norm-referenced and criterion referenced), cognitive abilities and processes, and mental health status...; measure of academic and oral language proficiency as appropriate; and indirect data sources...” (NASP, 2007, p. 5). Other researchers have recommended that comprehensive evaluations be conducted that include standardized tests of intelligence (Kavale & Flanagan, 2007; Hale, 2006)

This study found that initial evaluations for SLD vary greatly among school psychologists. The majority of school psychologists stated that academic achievement tests are administered, with some school psychologists stating that they are administered only when needed, and some stating that they are not administered but are required.

Cognitive assessments are also frequently administered, with several school psychologists stating that they are only administered as needed.

Behavior/social/emotional assessments and processing assessments were administered frequently by school psychologists. Curriculum based assessments were administered, but not as frequently. Very few school psychologists mentioned examining communication, adaptive skills, or second language acquisition.

In this study, other areas that are frequently utilized in a initial evaluation are academic interventions, RTI, progress monitoring, and universal screening data, classroom performance, record reviews, interviews with parents, teachers, and student, direct observations, gross and fine motor, background history including social social/behavioral history of the student, and the student's health. Very few school psychologists mentioned looking at fidelity data, and only one psychologist mentioned examining looking at exclusionary factors.

Research Question 3:

The third research question examined the barriers to implementing RTI effectively within a school setting. School psychologists in this study reported that the most commonly stated barrier to implementing RTI is fidelity/integrity of decision making, intervention monitoring, intervention implementation, progress monitoring, and consistency across schools. This was followed by problems with buy-in from teachers, administrators, and parents. The next area identified as a barrier to the implementation of RTI was that there is a lack of understanding regarding the concept of RTI, disabilities, interventions, and the RTI process, and there is a lack of guidance at both the school and district level. Other areas identified as barriers include a lack of training, lack of staff,

time restraints, workload, lack of materials and research-based interventions, cost of materials, and problems with core instruction. Problems regarding eligibility decisions and determinations, second language acquisition factors, problems with assessment and measurement, and problems with the RTI model itself were also identified as barriers.

One of the areas identified in both the literature and the current study is a lack of scientifically-based interventions. Having research-based interventions is one of the core requirements for the implementation of RTI, relating both to core instruction and to the interventions (Kratochwill, Clements, & Kalymon, 2007). There are a limited number of interventions for schools to choose from and there is a lack of generalizability associated with the interventions that are available (Kratochwill, Clements, & Kalymon; Knotek, 2007).

Other problems described in the research that could also be barriers to the implementation of RTI include problems with CBM's, methods for determining responsiveness versus nonresponsiveness, differentiating eligibility categories, and experimental bias. CBM's are typically used to benchmark students at Tier I and progress monitor students at Tiers II and III (Schilling, Carlisle, Scott, & Zeng, 2006; Burnes & Gibbons, 2008). However, the research is contradictory as to whether or not CBM's are both reliable and valid measures of reading achievement (Burns, Jacob & Wagner, 2008; Elliot, Lee, & Tollefson, 2001; Fuchs & Deno, 1992; Madelaine & Wheldall, 1999; Schilling, Carlisle, Scott, & Zeng, 2007; Roehig, Petscher, Nettles, Hudson, & Torgesen, 2008), whether or not they can differentiate between student's who are progressing adequately within the curriculum, those students who are at-risk for academic failure and those students who are performing below expected levels (Cizek,

2006), and whether or not passages are equated across reading levels for readability (Madelaine & Wheldall, 1999).

There is no consensus as to what constitutes responsiveness versus nonresponsiveness when determining response to intervention. There are many methods stating different ways of determining responsiveness, with each one being deemed problematic in a different way. Absolute discrepancy is deemed problematic because there is no consensus as to what the cutoff score should be and a student who has made significant growth can still be deemed unresponsive because they did not meet the specified goal (Fuchs & Fuchs, 2007). Slope of improvement is problematic because there are many options for comparing slopes and no consensus on how it should look (Barnes & Harlacher, 2008; Fuchs & Fuchs, 2007; McKenzie, 2009; Vallutino, Scanlon, Sipay, Small, Pratt, Chen, et al., 1996). The most reliable method for determining responsiveness is dual discrepancy, since it requires both rate of improvement and final status in relationship to a specified norm to be examined when determining responsiveness.

Differentiating eligibility categories is another barrier to the implementation of RTI that was stated in the literature. RTI as an assessment model is unable to distinguish between mild mental retardation, behavioral disorders, attention deficit/hyperactivity disorder, and specific learning disabilities (Mastopieri & Scruggs, 2005; McKenzie, 2009; Vaughn & Fuchs, 2003; Wodrich, Spencer, & Daley, 2006). RTI is also unable to distinguish between students who would typically be considered slow learners, as they also do not progress within the curriculum at the same rate as typical peers.

Finally, identification bias was mentioned in the literature as a barrier to implementing RTI. RTI was supposed to reduce teacher bias by relying on scores from universal screenings when making referrals for special education services (Vaughn & Fuchs, 2003). Teacher referrals, even under RTI, are still subjective and that the student's SES, race, culture, and/or gender play a role in the referral (Dunn, Cole, Estrada, 2009; Goodman & Webb, 2006).

Research Question 4:

The fourth research question examined the training school psychologists received as it relates to RTI and whether or not one environment provided better alignment to current practices. The majority of school psychologists in this sample reported receiving training through school district provided professional development, attendance at conferences, and self-guided readings. A fifth of school psychologists reported having trainings through webinars. These results are fairly consistent with the findings by Sullivan and Long (2010). They found that the majority of school psychologists received their training at conferences and workshops, just over half of school psychologists received their training at site-based in-services, and that just under a third of school psychologists had received their training through graduate coursework. The study by Sullivan and Long did not include webinars or self-guided readings.

This study did not find differences in training environment and determining special education eligibility under an RTI model. No differences were also found for training environment and training in administering universal screenings, analyzing universal screening data, utilizing universal screening data for decision making, developing effective interventions, writing intervention plans, knowing when to change

intervention plans, providing direct interventions, monitoring intervention fidelity, documenting treatment implementation, administering progress monitoring probes, and graphing progress monitoring probes. Significant differences were found for training environment and identifying scientifically based interventions, with training received during internship and school district provided professional development being rated higher than training received through conferences, self-guided readings, and webinars. Significant differences were also found for training environment and determining adequate progress, with training received through self-guided readings and conferences rated higher than training received through internship, school district provided professional development, and webinars.

When asked what they liked and dislike about their training, many areas were stated as both likes and dislikes by school psychologists. Areas identified include training in interventions, RTI model and steps, progress monitoring, universal screening, CBMs, assessment (academic, cognitive, and social emotional), counseling, eligibility determination, consultation and collaboration skills, and federal and state law and guidelines. Areas that school psychologists stated that they liked in regards to their training were practical experiences, foundational knowledge, an understanding of disabilities, and understanding of different RTI models. School psychologists mentioned that they liked the training they received through their local school district or other in-services. Areas that were disliked by school psychologists include number of trainings, training level, generality of the training, training expectation, repetition of information taught, a lack of examples, not always applicable to the population, there is disconnect with current practices, contradictory information provided, and that the trainings were

disorganized. They also mentioned that their instructors were poor and not all instructors had worked as school psychologists. Webinars were noted to be more of a way to advertise rather than provide training.

Summary:

The results of this study demonstrated that the majority of school psychologists utilize an RTI or combination RTI and ability-achievement discrepancy model. The majority reported that their sites administer universal screenings, provide interventions and progress monitor but fidelity is not monitored for administering universal screening, examining intervention implementation or responsiveness, or when looking at progress monitoring. Statistically significant relationships were found for model utilized and school psychologists who participate in analyzing interventions and progress monitoring.

Initial evaluations vary greatly but typically include the administration of academic achievement tests, cognitive assessments, behavior/social/emotional assessments, processing assessments, and curriculum based measures. Others areas assessed are communication, adaptive skills, second language acquisition, academic interventions, RTI, progress monitoring, universal screening data, classroom performance, prior school records, interviews, observations, and health.

Barriers to implementing RTI were found to include problems with fidelity and integrity, buy-in from administration, teachers, and parent, lack of understanding and knowledge in regards to RTI, lack of guidance from the district and state, lack of training, lack of staff, time restraints, work load, lack and cost of materials, problems with core instruction, problems with eligibility determinations, second language acquisition problems, and problems with assessment and measurement.

In regards to training, the majority of school psychologists in this study have received training through the school district, conferences, and self-guided readings. Statistically significant results were found for training environment and identifying scientifically based interventions and for determining adequate progress. School psychologists reported liking the training they received through their local school district but reported not liking the training they received through webinars. Many areas were reported by school psychologists as both being liked and disliked, however certain areas were reported as being liked while other areas were reported as being disliked. School psychologists liked the training they received in regards to practical experiences, foundational knowledge, understanding of disabilities, and understanding of the different RTI models. School psychologists did not like the training they received in regards to regards to the number and level of training, the generality of information taught, expectation level of the training, disconnect with current practices and population, professors or trainers themselves, and a lack of examples.

Discussion and Implications

Research conducted by Bender and Shores (2007), Berkeley, Bender, Peaster and Saunders (2009) and Fuchs, Mock, Morgan, and Young (2003) reported that among stated that are currently implementing RTI, the problem-solving protocol appears to be the preferred model even though the standard protocol is supported by most research because there is more control over treatment fidelity. The current research contradicts their findings. This study found that the majority of school psychologists reported utilizing either a standard protocol model or a combination of the problem-solving and

standard protocol models. School psychologists who responded to the survey reported infrequently using the problem-solving protocol as the sole model.

Studies in the past have found that assessment practices of school psychologists tended to vary depending on the part of the country and that most of their time is spent engaged in activities related to assessment (Hosp & Reschley, 2002). According the NASP (2006), the role of the school psychologist will change with the implementation of RTI with regards to assessment and intervention. No study has been conducted on whether or not assessment practices vary based on the model a school psychologist is currently using, which is what this study explored. This study found that schools who utilize an RTI model are more likely to evaluate intervention responsiveness and progress monitor. Also, school psychologists who utilize RTI spend more time analyzing interventions than school psychologists who utilize the ability-achievement discrepancy model or an alternative model.

RTI focuses on student outcomes and does not make any assumptions about the underlying cause of academic difficulties (Scruggs & Mastropieri, 2003; Vaughn & Fuchs, 2003). Because it focuses on progress made, if implemented correctly, it can reduce the number of referrals for special education services (Kavale, Kauffman, Bachmeier & LeFever, 2008). This study found no relationship between model and the number of completed SLD cases.

RTI involves identifying students through universal screenings (Vaughn & Fuchs, 2003) implementing interventions (NRCLD, 2005), and progress monitoring (NRCLD, 2005; Shinn, 2007), all done with integrity. Prior research was found that school psychologists view treatment integrity as important but it is typically not measured

and when it is measured, it is done through indirect methods (Cochrane & Laux, 2007; Cochrane & Laux, 2008). This study found that fidelity is not typically monitored and when it is, it is done through either direct observations or self-report.

In this study, the barriers to implementing RTI include lack of resources (staff, time, and interventions), a lack of training, and a lack of buy-in from teachers, administrators, and staff. Without the resources and buy-in, RTI cannot be implemented as intended. Teachers will not implement RTI as intended if they do not believe in it and view it as a barrier to eligibility. If there is no resource, then interventions cannot be implemented appropriately. This brings up another barrier that was noted by school psychologists, a lack of fidelity/ integrity in decision making, intervention monitoring, intervention implementation, progress monitoring, and consistency across teachers. Without fidelity/integrity, than RTI data may not be able to be trusted for eligibility determination.

RTI is supposed to change the practices of school psychologists (NASP, 2006), which means training needs to change. A study conducted by Sullivan and Long (2010) found that the majority of school psychologists received RTI training through conferences or workshops, followed by site-based in-services, then graduate coursework, and then supervised fieldwork. This study found that the majority of school psychologists have received training through conferences, followed by site-based in-services, then self-guided readings, and then webinars. This study extended the research and found that school psychologists rated their training through conferences and self-guided reading higher than training received through internships, and site-based in-services in the area of determining adequate progress and identifying scientifically based

interventions. Training is doing well in providing a theoretical foundation, providing an understanding of disabilities, providing information on the different RTI models, and providing information on research. It can improve in the areas of current levels, less repetition of information, being less theoretical, focusing more on specific populations, providing more examples, connecting to current practices, and being more organized. At graduate school level, professors need to have been working in the school setting.

Limitations

The primary limitation to the study was the way participants were selected. Not all e-mail addresses were available and of those that were available, not all were working, which limited the number of potential participants. Also, not all participants were able to access or complete the survey, which also limited the number of potential participants. Therefore, there was a small sample size, which resulted in the inability to analyze some of the data due to group size being below five in some areas. The small sample size may also result in limited generalizability of the research findings. This sample was also fairly homogeneous in the fact that the majority of participants held NCSP status.

Also, school psychologists had to complete the survey in one session and were not able to return to the survey to complete it. This may have influenced the responses towards the end of the survey. Also, because participants were allowed to skip questions, this may have created a bias in regards to answers received.

Recommendations for Future Research

The current study consisted of a small sample. Future research should be comprised of a larger sample that also includes school psychologists who do not hold NCSP status. It should also include school psychologists who are not members of the

National Association of School Psychologists. This may increase the likelihood that significant relationships may be found as well as increase the generalizability of the findings.

A replication of this study may also want to be conducted in the future since RTI is still relatively new and school psychologists who have been in the field longer may not have received the training in RTI. Also, since RTI has only been introduced with the current IDEIA 2004, not all states or districts are implementing it. By replicating this study, changes can be observed in the training and current practices of school psychologists as it relates to RTI as a method for assessing specific learning disabilities.

Future research should continue to examine the intervention approach that is most commonly being employed (standard-protocol, problem-solving protocol, or blended approach). The research could be extended to include exactly what interventions are being implemented, whether they are commercial programs or specially-designed school or district based programs.

Future research should also focus on assessment practices and how they vary depending on the part of the country. Research has shown that assessment practices do tend to vary depending on the part of the country one is employed (Hosp & Reschly, 2002). With the implementation of RTI, it would be interesting to see how these assessment practices evolve and if they evolve differently depending on where one is employed.

Future research should continue to focus on the barriers to implementing RTI as an assessment model. It can focus on what the specific barriers continue to be and how the barriers are being or can be overcome with the resources available. This will help

identify what schools are currently doing to overcome the barriers that they are facing and will provide a model to other schools that are experiencing the same problems.

The study by Sullivan and Long (2010) found that the majority school psychologists who have been in the field less than five years received RTI training through graduate coursework whereas those who have been in the field longer than five years have not. This is important because it is showing that there is a shift in the curriculum. Future research may want to continue to focus on this shift and further extend the current research by also including how well prepared school psychologists are when working in a district that utilizes RTI model for assessing Specific Learning Disabilities. It would also be interesting to examine how the in-services provided by school districts change over the next five years to incorporate school psychologists who have had the training through their graduate coursework.

Implications for School Psychology

The implementation of IDEA 2004 now allows states to utilize alternative assessments to determine eligibility for special education services under the category of specific learning disability (300.307(a)(2)). Since its implementation, RTI has started to become more prominent within the eligibility criteria of states and districts across the country. According to NASP (2006), the role of school psychologists is expected to differ with the implementation of RTI with regards to assessment and intervention. School psychologists are the best trained professionals in the school district to handle the tasks that are involved within the RTI model and are expected to play an active role with its implementation.

The role of the school psychologist is to help children succeed academically, socially, and emotionally (NASP, 2003). School psychologists are trained to collaborate with others to help understand child development and how it affects both learning and behavior, to provide counseling and interventions to individual or groups of students, to develop programs for students who are either at-risk or failing at school, to develop programs to increase safety, and to develop programs to increase effective learning. However, the main role of school psychologists is to evaluate students for special education services, which included administering academic, cognitive, social and emotional, and behavioral assessments. With the changes that came with the implementation of IDEA 2004, part of the role of evaluation is for school psychologists to take an active role in utilizing the RTI model as part of their assessment practices.

APPENDIX A: TABLE 12

Table 12
Demographic characteristics of school psychologists

		<i>N</i>	<i>%</i>
Gender	Male	20	14.3
	Female	100	71.4
	Missing	20	14.3
	Total	140	100
Age	25-34	51	36.4
	35-44	31	22.1
	45-54	16	11.4
	55-64	22	15.7
	65 and Older	2	1.4
	Missing	18	12.0
Total		140	100
Ethnicity	American Indian or Alaska Native	1	0.7
	Asian	1	0.7
	Black or African American	1	0.7
	Hispanic or Latino	5	3.6
	Native Hawaiian or Pacific Islander	1	0.7
	White	104	74.3
	Other	4	2.9
	Prefer not to answer	5	3.6
	Missing	18	12.9
Total		140	100
Educational Attainment	Doctorate in Education (Ed.D.)	1	.7
	Education Specialist Degree	69	49.3
	Master's Degree	4	2.9
	Master's Degree plus 32 Credits	27	19.3
	Doctorate of Philosophy (Ph.D.)	18	12.9
	Doctorate of Psychology (Psy.D.)	1	0.7
	Missing	20	14.3
Total		140	100
Credential/ Licensure	School Psychology Licensure	111	79.3
	Psychologist Licensure	10	7.1
	Early Childhood Education Licensure or Certification	4	2.9
	Elementary Education Licensure or Certification	7	5.0
	Secondary Education Licensure or Certification	8	5.7
	Special Education Licensure or Certification	2	1.4
	Administration	1	0.7
	Administration/Leadership Certification	1	0.7
	Pupil Personnel Services Credential	1	0.7
	Licensed Professional Counselor	1	0.7
	Educational Psychologist	1	0.7
	Licensed Specialist in School Psychology	2	1.4
	Marriage Family Therapist/ Licensed Psychological Associate	1	0.7
	Licensed Psycho-Educational Specialist	1	0.7
	Reading Specialist	1	0.7

	School Neuropsychology Certification	1	0.7
	Secondary Teaching Certificate- Science 7 - 12	1	0.7
Member of NASP	Yes	104	74.3
	No	17	12.1
	Missing	19	13.6
Total		140	100
Member of APA	Yes	10	7.1
	No	110	78.6
	Missing	20	14.3
Total		140	100
NCSP		120	85.7
Year Completed Internship	Prior to 2000	40	28.6
	2001-2005	34	24.3
	2006 or Later	46	32.9
	Missing	20	14.3
Total		140	100
Number of Years Practicing	0 – 5	45	32.1
	6 – 10	34	24.3
	11 – 15	13	9.3
	16 – 20	5	4.3
	21 – 25	8	5.7
	26 or more	16	11.4
	Missing	18	12.9
Total		140	100
Work Environment	Urban	32	22.9
	Suburban	58	41.4
	Rural	32	22.9
	Missing	18	12.9
Total		140	100
Primary Employment Setting	Public school(s) including charter and magnet school(s)	119	85.0
	University	1	0.7
	Residential setting	1	0.7
	Private school(s)	1	0.7
	Missing	18	12.9
Total		140	100

Table 13:
How fidelity is monitored

	Direct Observation		Inter-Rater		Self-Report		Post Interview		Post Rating		Other	
	n	%	n	%	n	%	n	%	n	%	n	%
Universal Screening	24	77.4	10	32.3	8	25.8	5	16.1	3	9.7	3	9.7
Intervention Implementation	22	62.9	4	11.4	22	62.9	5	14.3	4	11.4	5	14.3
Progress Monitoring	15	57.7	4	15.4	17	65.4	5	19.2	4	15.4	2	7.7
Intervention Response	13	61.9	2	9.5	10	47.6	6	28.6	3	14.3	3	14.3

Note: Percentages listed are based on the following n's: Universal Screening = 31; Intervention Implementation = 35; Progress Monitoring = 26; Intervention Responsiveness = 21.

APPENDIX C: TABLE 14

Table 14:
Components of an SLD Evaluation

	n	%
Academic Achievement Assessment	93	81.5
Academic Achievement- When Needed	6	5.3
Academic Achievement- Required but not administered	1	0.8
Cognitive Assessments	88	77.2
Cognitive Assessments- When Needed	9	7.9
Cognitive Assessments- Only with Processing D.O.	1	0.8
Curriculum-Based Measures	21	18.4
Curriculum-Based Measures- Not Every Time	2	1.8
Processing Assessments	31	27.2
Processing Assessments- When Needed	4	3.5
Adaptive Assessments	4	3.5
Adaptive Assessments- When Needed	1	0.8
Behavior/Social/ Emotional Assessments	34	29.8
Behavior/ Social/ Emotional Assessments- When Needed	9	7.9
Behavior/Social/Emotional Assessments- Informally	4	3.5
Communication	7	6.1
Receptive/Expressive Language	3	2.6
Speech Language	3	2.6
General Communication	1	0.8
District and State Testing	20	17.5
State Testing	13	11.4
Interviews	73	64.0
Interviews with Parent(s)	24	21.1
Interviews with Student	13	11.4
Interviews with Teacher(s)	29	25.4
Observations	54	47.4
Observations- When Needed	2	1.8
Observation- By Special Education Teacher	1	0.8
Observations- Requires but not Completed	1	0.8

Health Assessments	17	14.9
Gross/Fine Motor	6	5.3
Diagnostic Assessments	1	0.8
Targeted Assessments Based on Deficit	1	0.8
Dynamic Assessments	1	0.8
Appropriate Instruction	1	0.8
Classroom Performance	21	18.4
Review Information Provided	2	1.8
Folder Reviews	40	35.1
Outside Information	3	2.6
English Language Learner Status	2	1.8
Background Including Behavior/Social	23	20.2
Exclusionary Factors	1	0.8

APPENDIX D: TABLE 15

Table 15:
Mean and standard deviations of quality of training as a function of training modality (standard deviations in parentheses)

	Coursework	Internship	School District P.D	Conferences	Readings	Webinars
Administering Universal Screening	2.80 (1.05)	2.82 (1.00)	2.84 (0.95)	2.93 (0.76)	2.93 (0.88)	2.95 (1.02)
Analyzing Universal Screening	2.78 (1.03)	2.75 (0.92)	2.82 (0.96)	2.28 (0.81)	3.00 (0.80)	2.95 (1.02)
Utilizing Universal Screening	2.74 (1.01)	2.65 (0.88)	2.76 (0.98)	2.87 (0.80)	2.99 (0.85)	2.95 (1.02)
Developing Effective Interventions	2.63 (0.09)	2.66 (0.86)	2.62 (0.98)	2.64 (0.90)	2.78 (0.96)	2.73 (1.03)
Identifying Scientifically Based Interventions	2.72 (0.95)	2.58 (0.91)	2.57 (1.02)	2.88 (0.88)	2.94 (0.89)	2.70 (1.13)
Writing Intervention Plans	2.45 (0.91)	2.61 (0.91)	2.60 (0.95)	2.62 (0.91)	2.73 (0.96)	2.63 (1.17)
Providing Direct Interventions		2.64 (0.93)	2.55 (0.90)	2.62 (0.89)	2.75 (0.89)	2.60 (1.10)
Changing Intervention Plans		2.64 ((0.94)	2.56 (0.97)	2.68 (0.86)	2.79 (0.88)	2.65 (1.11)
Monitoring Intervention Fidelity		2.33 (0.92)	2.30 (0.95)	2.51 (0.92)	2.58 (0.96)	2.45 (1.15)
Administering Progress Monitoring Probes		2.69 (1.08)	2.67 (1.04)	2.82 (0.88)	2.87 (0.84)	2.85 (1.04)
Graphing Progress Monitoring Data		1.63 (1.13)	2.66 (1.09)	2.79 (0.92)	2.91 (0.88)	2.76 (1.09)
Determining Adequate Progress		2.51 (1.04)	2.49 (1.07)	2.83 (0.88)	2.84 (0.89)	2.73 (1.08)
Documenting Treatment Implementation		2.41 (1.08)	2.39 (1.05)	2.63 (0.88)	2.65 (0.90)	2.62 (1.07)
Determining SLD Eligibility		2.37 (1.09)	2.54 (1.04)	2.62 (0.88)	2.68 (0.92)	2.79 (0.88)

APPENDIX E: EMAIL REQUESTING PARTICIPATION IN SURVEY

Dr. Scott Loe
University of Nevada, Las Vegas
Educational Psychology
4505 S. Maryland Pkwy
Box 453003
Las Vegas, NV 89154-3003

Dear Colleague:

Approximately two weeks ago you received an e-mail requesting your participation in a survey seeking information on training, currently practices and fidelity related to assessment of specific learning disabilities.

If you have already completed the survey, please accept our sincere thanks. If not, please visit http://www.surveymonkey.com/s/Dissertation_RTISurvey and do so today. In order for the results to truly reflect the views of school psychologists, it is important that each person completes the survey.

If by some chance you did not receive the request to participate, please consider going to the website and completing the survey today. If you have any questions you may contact us at (702) 451-7655.

Sincerely,
Michelle Nathan, Ed.S., NCSP
Doctoral Candidate
Scott Loe, Ph.D.
Associate Professor- School Psychology

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VITA

Graduate College
University of Nevada, Las Vegas

Michelle Nathan

Degrees:

Bachelor of Science, Psychology, 2003
California Lutheran University

Masters of Science, Educational Psychology, 2004
University of Nevada, Las Vegas

Specialist in Education, Educational Psychology, 2006
University of Nevada, Las Vegas

Dissertation Title: School Psychologist's Perspectives of Response-To-Intervention: Training, Practices and Implementation

Dissertation Examination Committee:

Chairperson, Scott A. Loe, Ph.D.
Committee Member, W. Paul Jones, Ph.D.
Committee Member, Joseph Crank, Ph.D.
Graduate Faculty Representative, Jesse Brinson, Ph.D.