

MICHIGAN INTEGRATED BEHAVIOR AND LEARNING SUPPORT INITIATIVE:
AN EXAMINATION OF THE MICHIGAN MODEL
AND ITS EFFECT ON LEARNING DISABILITY RATES

Jeffrey J. Hall

A dissertation submitted in partial fulfillment of
the requirements for the degree of
Doctor of Education

Department of Educational Leadership

Central Michigan University
Mount Pleasant, Michigan
July 2011

Accepted by the Faculty of the College of Graduate Studies,
Central Michigan University, in partial fulfillment of
the requirements of the doctoral degree

Dissertation Committee:

Elizabeth Kirby, Ed.D.	Committee Chair
Regina Umpstead, Ph.D.	Faculty Member
Frimpomaa Ampaw, Ed.D.	Faculty Member
July 28, 2011	Date of Defense
Roger Coles, Ed.D.	Dean College of Graduate Study
October 13, 2011	Approved by the College of Graduate Studies

ACKNOWLEDGMENTS

I wish to thank the members of the Dissertation Committee: Dr. Kirby, Dr. Ampaw, and Dr. Umpstead. These faculty members provided valuable direction and made many contributions to the final product. In addition, I would like to thank my wife Karla. She provided tremendous support throughout the entire process. I would not have succeeded without her continuous encouragement. This was a team effort.

ABSTRACT

MICHIGAN INTEGRATED BEHAVIOR AND LEARNING SUPPORT INITIATIVE: AN EXAMINATION OF THE MICHIGAN MODEL AND ITS EFFECT ON LEARNING DISABILITY RATES

by Jeffrey Hall

The current study investigated the impact of the Michigan Department of Education's Office of Special Education initiative of Michigan's Integrated Behavior and Learning Support Initiative (MiBLSi) Cohort 3 and learning disability (LD) rates. The purpose of this study was to determine (a) if there is a reduction of LD identification rates, (b) whether there is a difference in LD identification rates between participating MiBLSi schools and non MiBLSi schools within the state of Michigan, and (c) whether gender impacts LD identification rates. This study was limited to MiBLSi Cohort 3 (N=45) in 2006-2007 school year through 2008-2009 school year and Michigan schools that programmed special education students within those selected school years. A pre-experimental one-group pretest-posttest design was utilized to determine if the MiBLSi framework may reduce LD rates. A pretest-posttest control group design was also utilized to determine how MiBLSi LD rates compare to the state average. Using the annually collected MDE December 1st special education student count, a t-test and z-test was used to determine statistical differences. Results revealed during the three year implementation period, MiBLSi Cohort 3 did not significantly reduce the LD rate for males, females, and total Cohort. Male and female LD rates were lowered, but did not reach the statistically significant threshold. However, when MiBLSi Cohort 3 was compared to non-MiBLSi schools, they entered and exited MiBLSi with lower LD rates than non-MiBLSi schools. The LD change rate over the three year period was not statistically different when comparing MiBLSi to non-MiBLSi schools.

These differences were consistent in LD rates for both boys and girls. The current findings highlight the influence of Cohort 3 school readiness for RtI implementation.

TABLE OF CONTENTS

LIST OF TABLES	ix
LIST OF FIGURES	x
CHAPTER	
I. INTRODUCTION	1
Statement of the Problem	2
<i>Accountability</i>	2
<i>Special Education Cost</i>	6
<i>RtI Framework</i>	7
<i>Integrating Behavior</i>	8
<i>Voids in Research</i>	10
Purpose Statement.....	11
Null Hypotheses.....	12
Significance of the Study	13
Assumptions	13
Delimitations and Limitations of the Study	14
Definition of Terms.....	15
Overview of Complete Document	16
II. REVIEW OF THE LITERATURE	18
Federal Role of Students with LD’s.....	19
<i>Court Decisions</i>	19
Historical Operationalization for LD Classification.....	21
<i>President’s Commission on Excellence in Special Education</i>	22
<i>National Research Council</i>	23
Learning Theory	25
<i>Classical Conditioning</i>	25
<i>Law and Effect</i>	27
<i>Operant Conditioning</i>	28
Early Literacy	32
<i>Preventing Reading Failure</i>	33
LD Construct	35
<i>Response to Intervention as an Eligibility Classification</i>	38
RtI Construct	40
<i>Operationalize of RtI</i>	42
RtI Instructional Delivery Models	45
<i>Problem Solving</i>	46
<i>Standard-Protocol Approach</i>	49
Curriculum –Based Measurement	51
MiBLSi Introduction	54
<i>Systems Approach</i>	58

	<i>Data-Based Decision Making</i>	60
	<i>Prevention</i>	61
	<i>Three-Tier Framework</i>	64
	<i>Team-Based Approach</i>	68
	<i>Committed Leadership and Staff</i>	69
	Conceptual Model	70
	<i>Research Conceptual Model</i>	73
	Summary of Literature Review	77
III.	METHODOLOGY	79
	Null Hypotheses.....	81
	Research Design	81
	Research Paradigm	83
	Population and Sample.....	84
	Instrumentation	86
	Data Collection and Variables	87
	Data Analysis and Procedures	88
	Problems in Data Collection	89
	Threats to Validity	90
	Ethics of Methodologies and Data Collection	90
IV.	RESULTS OF STATISTICAL ANALYSIS	92
	Null Hypotheses.....	92
	Data Collection	93
	Description of Cohort 3	94
	Enrollment Data and Demographics	96
	Research Hypotheses	100
	<i>Null Hypothesis 1</i>	100
	<i>Null Hypothesis 2</i>	100
	<i>Null Hypothesis 3</i>	101
	<i>Null Hypothesis 4</i>	102
	<i>Null Hypothesis 5</i>	103
	<i>Null Hypothesis 6</i>	104
	Summary	105
V.	SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	108
	Methodology Summary	109
	Summary and Discussion of Findings	110
	<i>Null Hypothesis 1</i>	111
	<i>Null Hypothesis 2</i>	114
	<i>Null Hypothesis 3</i>	116
	<i>Null Hypothesis 4</i>	119
	<i>Null Hypothesis 5</i>	120
	<i>Null Hypothesis 6</i>	123
	Conclusions	126

Implications	126
Recommendations for Further Research	128
Summary	131
REFERENCES	136

LIST OF TABLES

TABLE		PAGE
1.	Total Student Enrollment for Michigan.....	96
2.	MiBLSi Cohort 3 Descriptive Statistics	97
3.	Michigan Total Enrollment by Gender	97
4.	Cohort 3 LD Enrollment by Gender	98
5.	Michigan Enrollment LD.....	98
6.	Cohort 3 LD Percentage by Gender	99
7.	Michigan LD by Gender	99
8.	MiBLSi Cohort 3 LD.....	100
9.	MiBLSi Cohort 3 Male LD.....	101
10.	Male MiBLSi to State.....	102
11.	MiBLSi Cohort 3 Male LD/ Male LD State	103
12.	MiBLSi Cohort 3 Female LD	103
13.	Female MiBLSi to State	105
14.	MiBLSi Cohort 3 Female LD/ Female State LD	105
15.	Total MiBLSi to State	106
16.	Total MiBLSi Cohort 3/State.....	106

LIST OF FIGURES

FIGURE	PAGE
1. The Three Tier Model (National Center on Learning Disabilities, 2006)	42
2. The Problem Solving Model (NRCLD, 2007)	47
3. PBS Elements (Sugai & Horner, 2006)	59
4. Integrated Tier Model (NASDSE, 2006)	64
5. MiBLSi (2009)	72
6. Conceptual Model of Improving Student Achievement	75

CHAPTER I

INTRODUCTION

Response to Intervention (RtI) is gaining popularity due to the recent changes in the Individuals with Disabilities Education Improvement Act (IDEA, 2004). The revised law asserts states may permit the use of a process based on a child's response to research-based interventions to determine learning disabilities (LD) eligibility. Leading researchers and professional groups in the field of public education are exploring two necessary RtI components: the most effective way to operationalize RtI to reduce special education (SE) rates (Fuchs & Deshler, 2007; Fuchs, Moch, Morgan & Young, 2003; National Joint Committee on Learning Disabilities [NJCLD], 2005) and integrating behavioral supports within an RtI model (Gresham, VanDerHeyden & Witt, 2005; Bohanon, Goodman & McIntosh, 2008). RtI substitutes the thirty-year controversial and unreliable Intellectual Quotient (IQ)-achievement discrepancy model for the determination of LD (Fuchs & Fuchs, 2006; Kavale, 2005) and uses a problem-solving framework for early identification and interventions of at-risk learners (Berkley, Bender, Peaster, & Sanders, 2009). In combination, RtI is a strategy to meet the goals of IDEA (2004) and set high standards for increasing the student learning for all students.

This chapter discusses the background of the study as well as the purpose statement as it pertains to the current study. The significance of the study emphasizes the importance of the research questions and hypotheses that will drive the research as they are viewed through behavioral learning theories. An overview of methodology, delimitations, limitations, and definitions of terms used in the study are also viewed. This chapter concludes with a summary and an overview of Chapters I and II.

Statement of the Problem

The premise behind RtI is to (a) use scientifically-based interventions to address academically struggling students; (b) frequently assess students' rates of learning; and (c) make decisions regarding additional support based on individual student responses (National Association of State Directors of Special Education [NASDS], 2008). The end result is to reduce or prevent special education (SE) LD referrals.

Since the changes in IDEA (2004) did not include a guiding RtI framework, each state is responsible for its own implementation models (Berninger, 2006; VanDerHayen, Witt, & Barnett, 2005). Only 15 states have adopted an RtI model, and Michigan, in particular, is in the development phase of operationalizing RtI using pilots programs (Berkeley et al., 2009). As states and individual school districts explore specific RtI frameworks, it would be prudent to investigate the operationalization of RtI and the rate of LD referrals within the state of Michigan as results could inform implementation efforts. This chapter will address those constructs as well as considering accountability in education, SE costs, RtI framework, integrating behavior supports within RtI frameworks, and the voids in research.

Accountability

In 1975, President Ford signed Public Law 94-142, a landmark piece of legislation known as IDEA. The law sought improvements on how to educate and identify students with disabilities. Four key components of the law were: (a) States would provide all students a free appropriate public education regardless of ability or handicap; (b) Families must receive due process protection; (c) States and public schools would receive financial support with the education of children with disabilities; and (d) States and public schools are responsible to

evaluate the effectiveness of educating all children with disabilities (United States Department of Education, 1975).

The guiding principles of this law sought to establish a national mission to provide access to free public education and services and protect the rights of the learning disabled. It also sought to improve learning opportunities for students with disabilities by the purposeful evaluation of SE programs and their effects of student achievement. Together, they may attend school with other children and have their individual needs met. Interestingly, this law was the cornerstone to expanding opportunities for behaviorally aggressive disabled students.

In 1997, IDEA was amended by Public Law 105-17 to address educating behaviorally-aggressive disabled students (Sugai et al, 1999). Public Law 105-17 states “in the case of a child whose behavior impede his or her learning or that of others... the [schools] must consider positive behavioral interventions to address that behavior” [Section 614 (d) (3) (B) (i)]. This law represented an important endeavor by linking behavior to academic achievement. Additionally, as schools worked to meet the requirements of IDEA (1997), new initiatives were on the horizon.

A second initiative from IDEA (1997) was a result of school administrators’ concerns regarding the removal of students with disabilities who cause harm to themselves or others. According to Lewis and Sugai (1999), problem behavior is the chief reason why students with disabilities are suspended or expelled from schools, and is becoming a significant concern to schools. To address the concerns, The United States Department of Education, Office of Special Education (USDOE/OSE) recommended the creation of school-wide positive behavior supports (SWPBS) (OSEP, 2001). The Office of Special Education Programs Center on Positive Behavior Intervention and Support [Center on Positive Behavior Supports] (2004) define Positive Behavior Supports (PBS) as “broad range of systemic and individualized strategies for achieving

important social and learning outcomes while preventing problem behavior with all students” (p. 10). Moreover, PBS is the recommended form of intervention for dealing with challenging behavior in children with disabilities (OSEP, 2001).

The Elementary and Secondary Education Act of 2001, (P.L. 107-110) commonly referred as "No Child Left Behind" (NCLB), also created guidelines for improving academic achievement standards by using scientifically-based instruction for all students. NCLB stresses the importance of sound teaching practices by stating “programs and practices grounded in scientifically based research are not fads or untested ideas; they have a proven track records of success” (U.S. Department of Education, 2001). This legislative mandate had a profound impact in education as it set the stage for ensuring success of all students and penalties for schools that don’t meet standards. Furthermore, NCLB linked accountability standards with non-compliance of the law by stating, “This will bring real consequences to those schools that continually fail to improve student achievement as a result of using programs and practices for which there is no evidence of success” (U.S. Department of Education, 2001).

In addition to highlighting sound teaching practices, NCLB (2001) also emphasized the importance of early literacy success. The law requires schools to use scientifically-based instructional programs to promote children’s reading skills as well as the five components of effective reading instruction: phonics, phonemic awareness, fluency, vocabulary, and instruction. To ensure literacy accountability in schools, the federal legislation mandates: (a) reading assessments for all students in grade 3 through grade 8; (b) schools use or create instructional materials proven to remediate or prevent reading failure; and (c) all children read at grade level by the end of third grade by 2014 (NCLB, 2001).

An outcome of NCLB (2001) was a presidential commission established by President George W. Bush (United States Department of Education, 2001). The President's Commission on Excellence in Special Education was charged with improving the performance of students with educational disabilities (United States Department of Education, 2002). Their mission was to review relevant research and programs, interview experts and hear testimony, and submit their findings to the White House (Cameron, Parks, Schulte, & Stiefel, 2006). The commission also recommended changing the operational definition for LD identification to a new model coined Response to Intervention (RtI).

The next piece of education legislation signed into law by President Bush was the reauthorization of the Individual with Disabilities Education Improvement Act of 2004 (P.L. 108-144) (United States Department of Education, 2004). The new law created an alternative operational definition for LD. According to the United States Department of Education (2004), the new language to identify Specific Learning Disability states:

“The LEA is not required to consider a severe discrepancy model between achievement and intellectual ability in oral expression, listening, comprehension, written expression, basic reading skill, reading comprehension, mathematical calculation, or reading reasoning. The LEA may use a process that determines if the child responds to scientific, research-based intervention as a part of the evaluation procedures.”

[614(b)(6)]

The new legislation changed the operational definition of LD to using scientifically-based methods and monitoring students' responsiveness to instruction. The law discontinued the use of I.Q.-achievement discrepancy model as the sole means for identification of LD and attempted to

address the rising number of students receiving special education services and the costs associated with educating these students (Fuchs & Fuchs, 2006).

The new legislation also brings opportunities to reduce identification bias for SE eligibility. Scholarly experts contend factors such as gender and behavior leads to an over identification of males and an under identification of females as they influence a teacher's decision to refer (Gresham, 2007; Sideridis, Faye, Padeliadio, 2008). The U.S. Department of Education (2006) also corroborates those findings as they report that twice as many males than females are identified needing SE in elementary schools, and nearly 75% of students identified as LD are male. Researchers contend current SE identification methods are highly subjective, and new models, such as RtI, are necessary to prevent and protect against bias (Donovan & Cross, 2002; Gresham, 2007).

Special Education Costs

The landmark legislative measures of IDEA (1977/1997/2004) and NCLB (2001) created challenges for public schools who service students with disabilities. Due to the provisions established in the reforms, the percentage of students with disabilities seeking education in public schools instead of private institutions or private schools has sharply increased to 96%, an increase of 76% from 1977 (Schiller & O'Rielly, 2003). Finn, Rotherham & Hokanson (2001) also assert 6.1 million school age children were found eligible for SE services, up from 3.7 million in 1977. Nationwide, they conclude, 12.8% of the total student population is receiving SE services. Although the federal government sought to provide the disabled greater access to public education, critics argue the federal mandates are significantly underfunded (Fin et al., 2001).

Historically, the federal government appropriates 12.5% of the national average per-pupil expenditures for services afforded to SE students to each state, or roughly \$620 dollars per student (Fin et al., 2001). Thus, each state is burdened with allocating the remaining financial resources to fulfill the federal mandates. Michigan, for example, has 228,000 students, or 14.7 % of students receiving SE services (MDE, 2009). Of these students, the majority of these students qualify under the LD category (Michigan in Brief, 2002). In addition, there are several factors that lead to higher SE costs in Michigan. The MDE has set higher standards than the federal government for educating students with disabilities. For example, schools districts must comply with smaller class size ratio in SE rooms as the average class size for many programs must not exceed 12-15 students. If additional students are eligible, schools must assign aides or/and create a new section. In addition, many students with disabilities receive teacher aides as part of their educational plans. Furthermore, MDE allows for extended school year for some SE students (Michigan in Brief, 2002). Thus, per pupil spending for SE services in the state of Michigan costs up to three times more than a general education student. As Michigan schools are at financial crossroads on funding students with disabilities, RtI is gaining momentum.

RtI Framework

RtI refers to as a systematic protocol to provide students, identified as below grade level in reading achievement, with appropriate interventions that are monitored, measured, and adjusted (National Research Center on Learning Disabilities, RtI Manual [NRCLD, RtI Manual], 2006a). According to the National Association of State Directors of Special Education [NASDSE] (2006), RtI has several principles: (1) we can teach all children, (2) early intervention, (3) use a multi-tier decision model of instruction, (4) monitor student progress to

adjust instruction, and (5) use student data of responsiveness to interventions to make appropriate decisions.

Within RtI, how students respond to instruction leads to appropriate tiered programming.

The tier system consists of the following:

- 1) Tier 1: universal screening of all students in the general education setting after scientifically-based reading lessons are provided. Approximately eighty percent of all students should be successful at their tier.
- 2) Tier 2: based on universal screening, identified students receive supplemental instruction. This instruction takes place, over a period of time, in a pull-out setting to intervene with *students who are not responding to scientifically based instruction. Fifteen percent of students may need Tier 2 intervention.*
- 3) Tier 3: students receive additional intensive interventions, and if students fail to respond to interventions, referral for SE placement may be considered. Five percent of students may need Tier 3 intervention (Denton, Fletcher, Anthony, & Francis, 2006).

Integrating Behavior

There is an interest in linking behavior and academic frameworks into one blended initiative. This new movement is emerging from a notion that reducing behavior problems will result in more minutes in academic instruction, thus improving student performance (Bohanon et al., 2008). Michigan's Integrated Behavior and Learning Support Initiative (MiBLSi) is a state program sponsored by the Michigan Department of Education (MDE) to recruit elementary schools and intermediate school districts to "develop support systems and enable sustained implementation of a data-driven, problem solving models... to help students become better readers with social skills necessary for success" (McGlinchey, Schmallmo, & Goodman, 2008).

Its foundational framework is based on ideas from Robert Horner, a professor and lead researcher of PBS from the University of Oregon.

Addressing reading and behavior problems separately is a common occurrence in schools. Horner, (2003), however, prescribes building a cohesive framework of PBS that includes (a) investing in prevention; (b) building multiple layers and systems for addressing behavior; (c) pledging PBS support through a committed staff and administration; (d) using a team-based approach; (e) implementing sustainable practices; and (f) using data to support decision making. He further notes PBS is becoming the norm in addressing behavior issues in schools and many states are developing PBS initiatives to combat the growing increase of students with problem behaviors.

In research conducted by Illinois Positive Behavior Intervention and Support program (IPBS, 2008), they investigated a seven-center head start program that implemented PBS for four years to determine if SE were reduced. The center used a combination of system-wide interventions at the second and third tier and processes for early identification of at-risk students. They also utilized Child Assistance Teams (CATs) to identify and provide supports for at-risk students and to problem-solve behavior issues. As a result, the number of students referred to SE due to behavior issues was reduced by 81% in the last two years. McIntosh, Horner, Chard, Boland, and Good (1996) suggest schools implementing universal and secondary intervention PBS systems may have lower rates of SE testing/placement of students. Additionally, Reichle (1990) reported behavior problems play a significant role in preventing people with disabilities from interacting with others. He noted RtI frameworks which have PBS systems are likely to provide a continuum of support for at-risk students by removing barriers to learning. Within MiBLSi, educational leaders: (a) introduce and facilitate school-wide PBS, (b) adopt a three tier

RtI framework to deliver sound interventions, and (c) utilize a school wide support information systems (SWIS) which tracks and categorizes discipline referrals, suspension, and expulsions to aid in behavioral interventions (MiBLSi, 2003). Additionally, MiBLSi requires the use of Dynamic Indicators of Basic Early Literacy Skills (DIBELS) performance indicators due to its predictive relationship to the Michigan Educational Assessment Program (MiBLSi, 2008). DIBELS function as a reliable and valid diagnostic assessment tool for beginning readers. Oral reading fluency, in particular, assesses students' reading comprehension skills (DIBELS, n. d.).

Participating in the new MiBLSi initiative requires schools to change their current practices and design a new system that features (a) extensive team training on PBS, (b) action plans for behavior and reading interventions, and (c) school improvement literacy and behavior goals for all students. Since its inception of Cohort 1 in 2003, MiBLSi places accepted schools in yearly cohorts (i.e., Cohort 1, Cohort 2, etc.) to monitor the high level of implementation and staff involvement in a school-wide PBS model (MiBLSi, 2008). Thus, a study will be conducted to determine if MiBLSi is an effective state model in reducing LD rates.

Voids in Research

The RtI framework creates the opportunity for academic success with students by establishing a relevant and effective environment for meaningful learning. There are numerous endorsements of leading researchers and professional organizations citing only potential benefits of reducing SE rates by providing scientific-based interventions with high quality instruction (NJCLD, 2005). A solid research-base which establishes support for RtI as a means to reduce SE rates is paramount and is driven by the sense of urgency. As it costs up to three times more to teach students with LD, schools across the nation are investigating ways to combat the growing

costs and the increasing numbers of students identified as LD (Fuchs & Fuchs, 2006; Berkeley, Bender, Peaster, & Saunders, L., 2009)

Second, most of the research on RtI is focusing on reading in elementary schools as 80% of students with LDs have specific reading disabilities in reading (Fuchs & Fuchs, 2006). Scholarly research and literature indicates a void of an RtI framework for mathematics, secondary schools, content area classes, and behavior (Richards, Pavri, Golez, & Canges, 2007). Additionally, little research has been published regarding a comprehensive RtI model, which would include multiple core subject disciplines, as most of the research focuses on individual components (i.e. screening tools) of the framework (Kovaleski, 2007).

Finally, the state of Michigan is currently in an economic crisis and is considered to have ‘the worst economic picture in the nation’ (Steely, 2007). Due to a significant shortfall in state revenue, public schools are experiencing a reduction of state funding which has impacted student programs and staff cuts at many local districts. Moreover, Thomas White (2008), the executive director for Michigan Schools Business Officials argues schools resources will continue to be scarce; therefore, Michigan schools must examine their operations to enhance efficiency. As schools brace for scarcity of financial resources, an examination of MiBLSi is critical as this state initiative provides an annual stipend of \$6,700 for three years for each participating school to offset costs associated with implementation activities (MiBLSi, 2009). Consequently, MiBLSi is relatively new; therefore, research on its effectiveness is notably limited.

Purpose Statement

NCLB (2001) in conjunction with IDEA (2004) are catalysts for changing the way schools view academic achievement, behavior supports, identifying students with LDs, and evaluate evidence-based practices. Additionally, continuous learning and problem solving must

take place to effectively and efficiently meet the purposes of the federal mandates. Thus, the MiBLSi framework must assist schools in creating sustained practices to promote student achievement for all students. To that end, the purpose of this study is to examine the effectiveness of the MiBLSi framework by determining: (a) if there is a reduction of LD identification rates, (b) whether there is a difference in LD identification rates between participating MiBLSi schools and non MiBLSi schools within the state of Michigan, and (c) whether gender impacts LD identification rates. An investigation of this state initiative is prudent due to the current financial shortfall for many school districts in the state of Michigan and the extra costs associated with teaching students with LDs (See Fuchs & Fuchs, 2006; White, 2008).

Null Hypotheses

This study will utilize the following six null hypotheses:

1. There will be no significant difference in before and after comparison in the reduction of students identified as LD in MiBLSi schools.
2. There will be no significant difference in LD identification of males in MiBLSi schools.
3. There will be no significant difference in LD identification of males in MiBLSi and non-MiBLSi schools.
4. There will be no significant difference in LD identification of females in MiBLSi schools.
5. There will be no significant difference in LD identification of females in MiBLSi and non-MiBLSi schools.
6. There will be no significant difference in LD identification rates in MiBLSi schools and non-MiBLSi schools.

Significance of Study

Michigan is in a financial crisis, and the state legislature has enacted a reduction of 300 million dollars in school funding in the last five years (White, 2008). According to MDE (2009), the state spends over three billion dollars a year to educate students with IEPs. Moreover, the population of students with individual education plans (IEPs) identified in the state of Michigan has grown from 7.67% in 1977 to 14.7% in 2006 (MDE, 2009). In addition, the corresponding costs have soared. Thus, this study has a practical impact at the state level as policy makers may use this information to determine the future direction of Michigan's educational delivery service model.

Second, as schools are increasingly challenged with varying needs of students, disjointed data and framework systems, treatment protocols, and interventions systems are likely to be barriers to effective learning. According to MiBLSi (2003), a supportive framework is built with local, district, and state teams providing training for PBS and RtI. The premise behind MiBLSi is student behavior plays a significant role in academic achievement, and by reducing behavior problems, schools will have more time to address instructional needs. The logic for linking behavior and literacy support is supported by leading researchers. Bohanon et al. (2008) suggests the connection between low academic performance and problem behavior. He further asserts improving students' behavior will increase academic achievement. This study is of potential importance due to the accountability standards of NCLB (2001) and the financial cost of MiBLSi.

Assumptions

For the purposes of this research, it is assumed that Michigan MiBLSi schools met all conditional requirements as put forth in its application process, and the schools have frameworks

and a tiered intervention process that has been implemented with integrity. It is also assumed that data collected are accurate. Further, it is assumed the referral process for LD would be considered in MiBLSi schools only after intensive individual interventions in Tier 3 have been utilized.

Delimitations and Limitations of the Study

The delimitations of this study are that the data were collected from all kindergarten through 12th grade participating MiBLSi schools in the state of Michigan in the United States of America. Private schools may be part of this study if they were approved as a MiBLSi school. The research will be gathered from all public schools who met MiBLSi expectations of (a) implementing school-wide reading and PBS, (b) creating leadership teams to collaborate with intermediate school districts, (c) participating in training and technical support pertinent to MiBLSi, and (d) sharing school data. The research data will be gathered from MiBLSi and MDE.

This study presents possible limitations that may affect the generalizations of the results. First, in that MiBLSi schools received training from state and region level coordinators, the integrity of how the MiBLSi training at each school was delivered is difficult to ascertain. Second, although MiBLSi is school-wide framework, each school has particular characteristics resulting in interventions unique to the school. Third, since its inception of the pilot cohort in 2003, only 4 cohorts have met the recommended three year program commitment. Examining one cohort may not produce significant effects as it may take a long-term study to detect change. Finally, comparison between SE rates of schools and the state must be made with caution due to individual school characteristics (e. g., high-staff turnover, social economic status, class size, and local culture).

Definition of Terms

The following terms pertain to this study.

Cohort: A group of individual schools who are accepted to participate in the MiBLSi initiative (MiBLSi, 2004b).

Curriculum-Based Measurements (CBM): Curriculum-based measurements are brief assessments to measure the basic academic skills in students (Deno, 2003).

Dynamic Indicators of Basic Early Literacy Skills (DIBELS): A nationally recognized early literacy screening tool that assesses students (a) reading fluency, (b) phonological awareness, and (c) alphabetic knowledge. The assessments are predictive indicators for future reading performances (Glover, 2007).

Individuals with Disabilities Improvement Education Act (2004): The Individuals with Disabilities Improvement Education Act, often referred as IDEA or IDIEA, encourages the use of response to intervention as an alternative methods of assessments for children with disabilities (Dykeman, 2006).

Learning Disability (LD): “A disorder of one or more of the basic psychological processes” which inhibits learning. The last 30 years, it has been operationalize by the use of IQ-achievement discrepancy (Kavale, Holdnack, & Mostert, 2006).

Michigan’s Integrated Behavior and Learning Support Initiative (MiBLSi): A Michigan RtI and PBS integrated initiative to strengthen literacy performance while reducing problem behaviors in students (MiBLSi, 2004a).

Positive Behavior Supports (PBS): Strategies within a systemic framework to prevent behavior problems and provide ongoing support for students who have challenging behaviors (Center on Positive Behavior Supports, 2004).

Progress Monitoring: Progress monitoring are assessments to determine a student's academic or behavioral growth over time. The data will be used to if interventions are needed. (National Research Center on Learning Disabilities, RtI Manual (2006a).

Response to Intervention (RtI): An problem-solving approach used to afford struggling students additional interventions, monitor rates of learning, and determine whether additional literacy supports are necessary for learning (NASDS, 2008)

School-Wide Positive Behavior Support (SWPBS): A general term used to support a broad range of systemic and individualized strategies for achieving important social and learning outcomes while preventing problem behavior with all students (OSEP, 2004).

Universal Screening: These are brief assessments that provide predictive information regarding a student's development in a specific academic area. They are generally administered three times a year (David, Lindo, & Compton, 2007).

Overview of Complete Document

Chapter I presented the statement of the problem as it pertains to RtI and MiBLSi, and their effects on LD referral rates. The background of the study includes federal legislation imposed on schools to include students with LDs in the classroom and the increasing accountability of schools improving student achievement in IDEA (2004) and NCLB. The purpose statement, significance of the study, hypotheses, and research questions are included. An overview of methodology, delimitations, limitations, and definitions of terms used in the study are viewed.

Chapter II examines the theoretical framework and current literature related to the study of integrating RtI and PBS into MiBLSi. A brief review of federal court case litigation is also presented as it pertains to LDs. Behavioral learning theories are investigated through the work of

Pavlov (1927/2003), Thorndike (1903/2009) and Skinner (1953) and applied to MiBLSi's framework. The LD construct and RtI SE eligibility is presented next. The RtI framework which includes the three tier integrated model, current RtI instructional delivery approaches, and curriculum based measurements are also articulated. MiBLSi's integration with PBS and RtI is included and will lay the foundation for the research questions regarding the effectiveness of MiBLSi. Finally, the basis of this research is depicted in a conceptual model. The description and its components are described at the end of this chapter.

Chapter III presents the research questions, design, description of the population and selection, instrumentation, research questions, hypotheses, steps for data collection, and data analysis to answer the research questions. This research is a quantitative study used to determine the effectiveness of MiBLSi. To address the first, second, and fourth research questions, a pre-experimental, one group pretest-posttest design was utilized. This study used MDE December 1st SE counts to examine if: (a) MiBLSi schools were able to significantly reduce their LD identification rates, (b) there was a reduction of males identified as LD, and (c) there was a reduction of females identified as LD. For the third, fifth, and sixth research questions, a pretest-post test control group design was utilized (Creswell, 2002). The experimental group was the MiBLSi schools and the control group was the other schools in the state of Michigan. The study used MDE December 1st SE counts to compare the state of Michigan LD average to the identification rate of (a) MiBLSi schools, (b) males, and (c) females

Chapter IV and Chapter V provided the research results and discussions. Specifically, Chapter IV reviews the data gathered and presents findings pertaining to the effectiveness of MiBLSi. The researcher's conclusions, implications, and recommendations for further research are reviewed in Chapter V.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this study was to examine the effectiveness of Michigan's Integrated Behavior and Learning Support Initiative (MiBLSi) framework as measured by the number of identified students with learning disabilities (LDs). It also determined what differences, if any, there were between the rates of LDs in participating MiBLSi schools and non MiBLSi schools in the state of Michigan. As federal policies hold schools accountable for students achievement, a plethora of educational reforms for reading achievement and behavior supports are gaining momentum to support students with LD and general education students alike. As schools shift their foci from exclusionary practices to integrated support systems, it will entail a fundamental shift to a collective commitment to all students' academic success learning. It may require schools to openly examine current goals, practices, systems, and environments to enhance learning opportunities for teachers and students. It may also create a more responsive approach to decrease LD identification rates.

MiBLSi is Michigan's response to the federal policy of "response to interventions" (RtI) included in IDEA (2004). Its purpose is to assist schools in redesigning their environments and creating a proactive system to improve literacy and behavior in all students. MiBLSi, as defined by this study, requires schools to use a three tier integrated RtI and behavior model for the prevention of long-term academic and behavior difficulties (MiBLSi, 2008a). It also requires schools to eliminate their current embedded instructional practices of teaching students with LD in segregated rooms and implement a problem solving model to address learning needs. As MiBLSi is a relatively new initiative, a literature review will examine related research and its relationship to improving student achievement and behavior.

A literature review of the following areas will be discussed: Federal role of students with LDs and court decisions, learning theory, LD construct, RtI construct, MiBLSi Framework and the conceptual model. The next section includes information pertaining to the federal role as it relates to LDs.

Federal Role of Students with LD's

The Individual with Disabilities Education Improvement Act (IDEA, 1975) provided necessary learning and procedural safeguards for students with disabilities. The premise behind this law was to ensure all students learning opportunities, eliminate exclusionary practices, and schools must work on behalf of the students (Cameron et al, 2006). Additionally, IDEA (1975) placed LD as a funding category as schools could receive money to educate students diagnosed with LD. Prior to IDEA (1975), however, the failing conditions and learning environments for these students led to judicial decisions.

Court Decisions

Until the early 1970's, students with disabilities faced many challenges in schools environments. They could be denied a public education as school districts were allowed to write admission standards, be placed in segregated schools and institutions, or left to handle the academic challenges on their own (Reynolds & Fletcher-Janzen, 2001-2007; Itkonen, 2007). Additionally, students with disabilities with extreme forms of aggressive behavior or self injury also faced challenges of being removed from school (Sugai, Horner, Dunlap, Hieneman, Lewis, et al., 1999). Although the federal government financially supported special education (SE) programs, it was not until parents and advocates for the handicapped combined forces that changed the way services and support were provided. At that time, both parent and advocates felt

schools perceived the handicapped as inferior and felt ignored by local schools as it was common among the states not to educate the handicapped (New York Education Department, n. d.). When President Eisenhower intervened by creating the federal educational agenda that included rights for the handicapped, proponents of the handicapped built additional arguments from a landmark race-discrimination case. The following cases set the context for their arguments.

Brown v. Board of Education (1954) was filed on behalf of black children who were sent to a segregated black school in Topeka, Kansas. The students were denied enrollment to a white school and bused to a “black school” further from their homes. The plaintiffs argued their children were denied equal opportunities due to their race. The Supreme Court of the United States ruled in favor of *Brown* overturning the previous “separate but equal” court case *Plessy v. Ferguson*. Equal protection under the law, underscored by the Fourteenth Amendment, was a pivotal argument for students with disabilities.

Two landmark court cases, *Mills v. Board of Education of District of Columbia* (1972) and *The Pennsylvania Association for Retarded Citizens (PARC) v. Commonwealth of Pennsylvania* (1971), created a national movement toward rights of disabled children (Itkonen, 2007). In *Mills*, parents and guardians who had children with various disabilities argued their children were excluded from school without due process. The ruling stated the district failed to provide public supported education to “exceptional” (i.e. special education) children, and the Board of Education was in violation of equal protection and due process. Similarly, in *PARC*, parents with children with mental retardation argued they were not receiving public education. The court ruled in favor of *PARC* and required students with disabilities receive a free public education. Excluding students with disabilities was no longer acceptable, and federal involvement intensified. The next section will discuss how handicapped students, specifically the

learning disabled, have been operationally defined by the federal government for the last 30 years.

Historical Operationalization for LD Classification

Since 1977, the primary criterion for LD classification was a severe IQ-achievement discrepancy model. Schools use IQ tests to measure a student's expected achievement level and academic achievement tests to measure current achievement level. Students receive additional LD support in the achievement deficit areas significantly below the measured IQ. Thus, students are considered LD if their current achievement level is significantly below their expected achievement level. Ninety-eight percent of states use this operational definition to determine eligibility for SE services (Mercer, Jordan, Allsopp, & Mercer, 1996). Interestingly, 80 percent of students who enter into SE are classified as LD (Fuchs & Fuchs, 2006a).

Numerous concerns surfaced with this operational definition of a LD (Machek & Nelson, 2007). From 1975 to 2006, the population of students identified as LD increased nearly 150% using the severe IQ achievement discrepancy model (National Research Center on Learning Disabilities, L.D. User's Guide [NRCLD LD User Guide], 2006; Kavale, Holdnack & Mostert, 2006). Accordingly, many researchers noted the "alarming high" rates as recent estimates of 20-30% of students could be categorized as having a disability (NRCLD LD User Guide, 2006). There was also significant variability between states in the number of students identified as LD as the identification rates ranged from 2.1% to 8.66% of the states' student population (Scruggs & Mastropieri, 2002). Disturbingly, a student identified as having a LD in one state may not be identified in another state. Thus, the variability concerns and a lack of consistency in methodology and identification procedures make for a compelling case for federal changes in the operational definition of LD. Consequently, two key reports led to those federal changes.

President's Commission on Excellence in Special Education

Due to the intense pressure of the overreliance of the discrepancy model for determining a LD, President George W. Bush established a Presidential Commission on Excellence in Special Education (PCESE) to review all federal, state, and local SE programs. Their task was to make federal policy recommendations for improving SE academic performances (U.S. Department of Education, 2002). In a report given to President Bush on October, 2, 2001, a series of recommendations regarding the identification, practices and assessments of students with LDs were presented.

First, the commission recommended early interventions and screening as they argued students who qualify for LD services did not receive early interventions or more effective instruction (U.S. Department of Education, 2002). The commission also concluded current SE programs are not result-driven, and student achievement was not the primary focus of the process. The report states “effective and reliable screening of young children can identify those most at risk for later achievement and behavioral problems, including those most likely to be referred and placed in special education” (US Department of Education, 2002, Sec., 2). Additionally, the commission encouraged states to universally screen students for behavior difficulties. The commission argued there was little regard for early identification and prevention for students who have behavior problems and are academically at-risk. The commission also encouraged schools to intervene early to prevent failure.

A second recommendation from PCESE was to simplify the SE identification process (U.S. Department of Education, 2002). They suggested this process was too broad and the wide variability of criteria amongst the states caused inconsistencies for LD identification. Moreover, they noted the methods of identifying disabilities lacked validity and led to the misidentification

of thousands of students every year. The report also stated the lack of consistency of diagnostic criteria contributed to large increases in other health impairment categories (319%) and LD (36%). The commission suggested clarifying eligibility guidelines and redefining a LD as it relates to interventions may help reduce the number of students entering SE.

Third, incorporating RtI during the identification and assessment process was a recommendation in this report (U.S. Department of Education, 2002). The commission asserted the IQ-discrepancy model in determining eligibility is often misinterpreted, and the current practices of LD does not consider the use of interventions. Furthermore, the report added IQ tests were unreliable in determining a student with a LD from a student with low achievement. They also argued RtI systems call for research-based intervention methods which are directly linked to learning outcomes, whereas IQ tests results lack meaningful student outcome data.

The final recommendation put forth from the commission was to incorporate universal designs in accountability tools to ensure students with LDs are not excluded from assessments (U.S. Department of Education, 2002). The commission noted students who sought modifications from statewide assessments were denied, or their tests were excluded due to concerns with validity. They further asserted modifications and accommodations students typically receive in the classroom should be built into the tests to eliminate those concerns. It does not, however, allow students with disabilities to be assessed on levels other than their enrolled grade level.

National Research Council

The National Research Council (NRC) issued a report in 2002 which examined the over representation of minorities in SE. At the request of Congress, the NRC was asked to revisit its 1979 report on factors contributing to the disproportionate representation. The report noted the

prevailing flawed system placing minority students, who have greater behavior problems or academic failures, in SE. The report further ascertained many minority students are often labeled at risk, and this factor may contribute to teacher bias and the increase in referrals.

The report set forth a series of federal and state guidelines to improve the identification and assessment of students suspected of a disability and to promote a unified system by which general and SE teachers can collaborate to assist struggling learners. The recommendations were: (a) provide struggling readers and students with behavioral problems early screening and interventions before the seeking of a referral to SE; (b) only consider SE if a student fails to respond to research-based interventions; (c) make the referral process more meaningful by using multidisciplinary teams and a variety of assessment tools; and (d) utilize universal behavioral interventions and screening to work with students who have behavior problems. They further recommended states launch behavior pilot programs to address this need. In its summary, the report suggests “schools should be doing more and doing it earlier” (NRC, 2002, p.10) to reduce minority SE rates.

In summary, the federal government’s role on students with LDs is evolving. The creation of federal policies was a result of numerous criticisms regarding the identification, variability, and servicing of students with LDs. The accountability to comply with the legislative mandates, which focus on improving student achievement outcomes, necessitates schools to be effective in its mission to educate all students. Examining theories and processes about student learning is necessary in the on-going debate of servicing students with LDs. In the next section, behavior learning theorists and their basic tenets will be discussed.

Learning Theory

The theoretical framework guiding this study is student learning. How students learn has dominated the field of psychology for over 100 years and is the subject of numerous research studies (Shuell, 1993; Smith, 1999). Learning, the process of relatively permanent or potential behavioral change, is a fundamental expectation of a school's role and a basic human need (Slavin, 2003). It is often measured in observable behavior in student outcomes (i.e. tests and quizzes) thus, communicating student ability and learning (Hartley, 1998). MiBLSi (2008) also contends student learning may improve if schools establish school-wide expectations for behaviors. Although there is a plethora of theories, or beliefs how students learn, many researchers note the causal relationship between learning and behavior (Smith, 1999).

Behavioral learning theory, originally developed by B.F. Skinner, is based on the belief that learning is a response to a stimulus and environment (Smith, 1999). Behaviorists believe learning is manifested through observable behaviors, and they disregard other learning theories such as cognitive learning theories where learning is considered an active filtering and integrating of information (Huitt, 2006). This learning theory is based on three key learning assumptions: (a) the learning process should focus on stimulus and response; (b) the evidence of learning is guided by behavior, (c) learning is guided by environmental factors or stimuli (Merriam & Cafferella, 1998). Understanding and applying behavioral learning theories in the classroom may be a useful tool for improving student achievement. The next section will explicate three behavioral theories and their applications to MiBLSi.

Classical Conditioning

Classical conditioning, also called stimulus response, is a theory discovered by an early and well-known researcher in the field of behaviorism, Ivan Pavlov (Slavin, 2003). His theory

supports the notion that humans and animals learn to develop certain natural responses or reflexes to stimuli (Shuell, 1993). In one of many studies involving dogs' digestive processes, Pavlov (1927/2003) noted dogs salivated with the introduction of meat powder. Over time, he paired an additional neutral stimulus of bells with and without meat powder and noted dogs eventually began salivating with the sound of the bells even when food was not present. Pavlov concluded in this study that pairing a neutral stimulus with a response that occurs naturally, referred as an unconditioned response, the neutral stimulus has power to reproduce a similar response. Slavin (2003) noted Pavlov referred to this process as classical conditioning as salivation was not a natural response to the bells, rather a learned reflective response, as dogs were conditioned to associate bells with food. Behaviorists argued Pavlov's work with dogs indicate learning was a result of a series of environmental forces or stimulus (Merriam & Cafferella, 1998).

MiBLSi asserts schools embed school's culture and environment with positive behavior supports (PBS), thus changing the environment to promote positive learning experiences (MiBLSi, 2004). They also contend changing the school's environment (e. g., playground, lunchroom, classroom etc.) allows students to associate appropriate behaviors within all school environments. Schools that participate in this initiative are required to utilize a specified process to teach and model acceptable behavior so students learn to associate appropriate behaviors. MiBLSi (2008) also promotes the idea of "signal" teaching. In this example, all teachers will utilize a signal (e. g., raise hand, holding up two fingers, etc.) when the appropriate behavior is expected to occur. It is expected that students would associate the signal with the expected behavior.

Additionally, teachers utilize classical conditioning principles in the classroom to reinforce basic behavior or learning expectations (Hartley, 1998). For example, a teacher might note a student who disrupts the classroom by shouting out answers. After a discussion with the student, they might decide upon a signal (i.e. certain word or physical gesture) for the student to check his behavior. Once the teacher gives a signal, the student should adjust to a more appropriate behavior. A second classroom example of classical conditioning is the morning bell for class. The bell will signal to the students to report to their classes to begin school. Both examples reinforce Pavlov's theory that learning may be a reflex to a stimulus.

Law and Effect

Edward Thorndike, a pioneer in early behavior learning theory and an American Psychologist, also studied animal behavior (Smith, 1999). He is well-known for his experiments centering on animals escaping from puzzle boxes and developing the principle of Law and Effect. In one study, Thorndike (1903/2009) placed a hungry cat inside various enclosed puzzle boxes with mechanisms (i.e. levers, cords, stepping on platforms) to open the boxes and receive a food reward. In the experiment, he observed the cat, through trial and error, was eventually able to escape the different boxes and receive access to food. Thorndike also noted that through subsequent trials of the experiment the cat was able to escape more quickly from each puzzle box. Thorndike argued the cat's behavior led to positive outcomes, whereas behaviors that led the cat not to escape were less frequent. He named this principle the Law of Effect. Thorndike also theorized animals learn by trial and error resulting in negative or positive consequences. He further argued when animals associate their behaviors with positive outcomes, their behavior strengthens. Conversely, if their behaviors had a negative consequence, the animals are less likely to repeat the behavior.

MiBLSi (2004) argues the use of “big ideas” to improve learning appropriate behavior is essential to school-wide implementation efforts. They assert (a) specifying, (b) teaching, (c) monitoring, and (d) encouraging appropriate behavior and (d) correcting inappropriate behavior are best practices in improving student behavior. Like Thorndike’s Law of Effect that suggests behaviors strengthen when they are associated with positive outcomes, Sugai and Horner (2006) also contend schools that overtly teach appropriate behavior are more likely to prevent patterns of problem behavior in students and the school environment will improve. They further argue that “environmental manipulation” that promotes positive behavior may affect learning.

Thorndike’s Law of Effect is also influential for classroom teachers. Hartley (1998) notes the importance of lesson design is important for reinforcing behaviors. For example, as teachers present lessons, they need to be skillful in building student success thus creating satisfaction. If students have anxiety or stress with a difficult lesson, the teacher should encourage their abilities, and they will more likely to have a positive experience. Consequently, if the teacher does not recognize or address their anxiety, the learning will be weakened.

Operant Conditioning

Operant conditioning, a theory developed by renowned American psychologist B. F. Skinner, is the belief that learning may be a result of reinforcements or punishments (Smith, 1999). Operant conditioning theory, the way behavior operates on the environment to achieve a goal, has been the subject of thousands of research studies often replicating by Skinner’s original work (Slavin, 2003). In many of his studies, Skinner (1953) used the self-titled Skinner box, or operant conditioning chamber, to study animals’ behavioral responses. The box contained several levers animals can press to receive reinforcements such as light or sound accompanied with food and water. An additional device also recorded the amount and time each lever was

pressed to ensure accurate data when a tester was not present. In a well-known experiment using the Skinner box, he placed a hungry rat inside the box to monitor behavioral changes (Skinner, 1953). Once the rat pressed a particular lever, a food pellet or water would be dispensed into the food cup. As the rat continued to press the particular lever, it was rewarded with food or water. Skinner argued “behavior (i.e., learning) is shaped or maintained by its consequences.” The rat eventually learned food or water would be dispensed once a particular lever was pressed. Through his study with rats, behaviorists formed a set of overarching behavioral principles that support the notion of consequences of a behavior help shape future behaviors (Slavin, 2003).

The first principle, reinforcements, is defined as a behavioral consequence that increases or strengthens the behavior (Skinner, 1953). It is based on the idea that people and animals can learn to exhibit certain behaviors based on consequences. According to Skinner (1953), there are two types of reinforcements: positive and negative. Positive reinforcement is the introduction of a new stimulus to the environment to achieve a goal or reward, thus increasing the chances of the behavior reoccurring. Hartley (1998) suggests classroom examples of this principle may include teachers using positive reinforcers such as praise or rewards for a particular behavior such as following school rules or teacher directions. Conversely, negative reinforcement is the removal of negative stimuli to increase or strengthen a response. MiBLSi (2008) examples may include verbal praise, and punch cards which can be traded in for school rewards or activities. Classroom examples may include dismissing a detention for good behavior and dismissing homework over the weekend if all students complete a chapter review on time.

Skinner (1953) argues schedules of reinforcements, the second behavioral principle, are important to maintaining behavior and affecting responses. This principle refers to the regularity of the reinforcer, the lapse of time between opportunities for reinforcement, and the expectedness

of reinforcement (Slavin, 2003). In PBS systems, schools are expected to continually reinforce positive behaviors. Sugai and Horner (2006) also add the rewarding behavior will reduce problem behavior. Skinner (1953) suggests there are two types of reinforcement schedules: continuous reinforcement and partial reinforcement. In continuous reinforcement, the behavior is reinforced every time. Hartley (1998) suggests this is best applied during initial stages to create association between the behavior and response and is an expedient way to establish new behaviors or to lessen unwanted behaviors. Partial reinforcement is reinforcing the behavior intermittently. Skinner (1953) also suggests four types of scheduling to reinforce the desired behavior are necessary:

1. Fixed-ratio schedules are those where reinforcement is given after a specified number of responses or behaviors. According to Slavin (2003) this schedule elicits a rapid frequency of responses. For example, a student on a behavior contract may receive a positive reinforcement after three continuous hours of appropriate behavior.
2. Variable-ratio schedules occur when reinforcement is given at varying number of responses or behaviors. Slavin (2003) suggests people's desire for the reinforcement will encourage them to respond. For example, an individual MiBLSi school may create an incentive program in which students are randomly rewarded for completing homework thus enticing them to commit the appropriate behavior.
3. Fixed-interval schedule are when the behavior is reinforced after a specified period of time has elapsed. Slavin (2003) notes this schedule produces a slower response frequency but tends to increase after time has elapsed. One example applicable to this schedule is a weekly spelling quiz. Students learn spelling quizzes are on a given day (i.e. Friday) and as Friday approaches, the behavior increases to pass the test.

4. Variable-interval schedules occur when the behavior is reinforced after a variable time interval. Slavin (2003) suggests this schedule creates a slow yet continuous frequency of response. For example, students learn their teacher gives random yet frequent pop quizzes. This will encourage students to consistently review the material.

Shaping behavior, a third principle, is the gradual increase of reinforcements to support new learning (Skinner, 1953). He asserts shaping is effective when complex tasks are expected. A classroom example which supports this principle may include a teacher who wants her students to learn a multiplication algorithm. She may first reward the students for knowing the first step in the algorithm, and then may reward them for a second step. Finally, she would only reward them for the correct answer.

The final principles are punishers and extinction (Skinner, 1953). Punishers, according to Skinner (1953), are added consequences which are likely to weaken an existing or undesirable behavior. He (1953) suggests punishers are commonly utilized techniques of control with the intention to reduce unwanted behaviors. He added, however, the effects of punishment are generally temporary and recommends punishments should be used subsequently to positive and negative reinforcement as punishments may not deter or discourage unwanted behaviors. Common used examples of punishments found in schools are detentions, time-outs, suspensions, and expulsions (Center of Positive Behavior Support, 2009).

Behavior learning theory's impact on student learning is noteworthy, especially in students with LDs. Steele (2005) asserts the use of behaviorally-oriented instructional approaches such as direct instruction and reinforcements may improve student learning. One approach she suggests is to break down lessons into small managing parts to lessen the effects of

frustrations. Like Thorndike's Law of Effects, Steele (2005) notes teachers should be cognizant of the complexity of the lessons and simply the learning tasks into small segments. She contends this will reduce student frustration and anxiety, thus creating a more positive learning experience.

A second approach Steele (2005) asserts is the use of direct instruction using predictable lesson sequences. She articulated students with LDs benefit from a direct instructional approach as students tend to achieve when lesson structures are predictable. This approach parallels Pavlov's classical conditioning principle as teachers create a predictable learning environment which likely produces an expected response from the students.

Finally, Steele (2005) contends the use of relevant and frequent positive feedback is critical to students with LD's success and notes this approach builds student learning and confidence. Much like Skinner's (1953) reinforcements theory, Steele (2005) added positive reinforcements strengthen desired behaviors. Interestingly, Skinner (1978) recognized its importance to education by stating, "The experimental analysis of behavior has improved education by clarifying its objectives, suggesting new practices in classroom management, and introducing instructional programming texts and other materials" (p. 10). In addition to examining behavioral principles for the classroom, it is prudent to investigate factors contributing to the LD decision identification. The next section will discuss the value of early literacy intervention.

Early Literacy

The importance of early literacy has gained momentum prior to NCLB (2001.) This is due in part to the dismal reading scores throughout the nation. According to The National Assessment of Educational Progress (NAEP), 36% of fourth-grade children read below grade

level and lack basic content and educational skills (National Center for Educational Statistics, 1996). Furthermore, they contend 17.5 of the nation's children have severe reading difficulties in prior to third grade. Growing concerns regarding reading deficits has prompted the National Reading Panel (NRP) established by Congress in 1998, to investigate research-based knowledge of reading and effective reading instruction and practices. The Panel's mission was to (a) review and synthesize leading research studies in beginning reading, (b) evaluate effective and scientifically-sound methods for teaching of reading, (c) develop a plan to disseminate effective reading methods to schools, and (d) create a plan for additional research in the field of reading (Center on Teaching and Learning, n.d.). Additionally, and of importance to this research study, the Panel also submitted a progress report to Congress regarding the importance of early identification and interventions for all children. They noted children at risk for reading failure need early, systematic, and direct instruction to optimize reading success. They concluded that "those who fall behind in their first three years of schools may never become fluent readers" (NRP Progress Report, Sec 1). Furthermore, leading reading researcher Joseph Torgensen (2009) stated, "Children who are destined to be poor readers in fourth grade almost invariably have difficulties in kindergarten and first grade with critical phonological skills . . . These children find it difficult, even unpleasant, to read independently . . . Their problems then spiral." (p. 3). He further asserted early identification and intervention is crucial to prevent reading failure. Scholarly researchers also argue early literacy instructional practices are likely to prevent or reduce referrals for LD (Coyne et al., 2004; Lyons & Fletcher, 2001).

Preventing Reading Failure

Early literacy instruction is complex as there are many obstacles preventing or impeding a child from reading (Snow, Burns & Griffin, 1998; NRP, 2000). First, young readers need

phonics instruction (i.e., manipulate sound with print) and phonemic awareness instruction (i.e., hear and manipulate sounds) to prevent reading deficiencies. Torgensen (2009) adds early deficits in phonic and phonemic awareness will likely result in poor reading performance, and students may not be able to overcome deficits in later grades. Second, achieving fluency, or speed and accuracy of print, along with vocabulary knowledge and comprehension strategies and instruction are necessary for children to become good readers. Torgensen (2009) concurs by asserting deficits in these components may also hinder reading development in children. Additionally, according to Lyon & Fletcher (2001) children need preventative and early intervening along with sound instruction in phonics, phonological awareness, fluency, and reading comprehension to increase reading skills.

The tendency to wait for children to academically fail and refer students for SE for reading remediation is problematic for children. Lyon & Fletcher (2001) assert children lose motivation to read after a year or more of reading failure. Thus, early identification and intervention may prevent the loss of interest and enthusiasm among the at-risk. Additionally, current research suggests students experiencing deficits in reading skills will likely have the continuation of reading failure. For instance, Juel (1994) found students who had poor reading skills in first grade have only a 13% chance of overcoming reading difficulties by 4th grade. Furthermore, Lyon & Fletcher (2001) contend SE students may receive non-explicit and intensive literacy instruction that would improve reading performances. Leading researchers, however, have growing supportive evidence that early intervention can improve reading skills

In research conducted by Wang & Algonzzie (2008), they investigated the effects of targeted interventions to children with serious reading deficits. The study involved 139 at-risk first graders in an urban school system. Of those selected, 101 students received intervention

treatment and 38 students were placed in the control group. The treatment group received 110 minutes of literacy instruction utilizing scripted lessons from McGraw –Hill Reading and an additional 10 minutes of explicit instruction of phonemic awareness, alphabetic understanding, decoding skills, and fluency practice. The control group received 120 minutes of literacy instruction that focused on scripted lessons from McGraw-Hill Reading as well as literacy activities supported by the core curriculum. Using fall pretest and spring posttests of Woodcock Reading Mastery Test-Revised and Dynamic Indicators of Basic Early Literacy Skills (DIBELS) to measure student growth, students in the treatment group made higher gains in all literacy measures compared to control group. Interestingly, the authors noted the continued need of targeted and explicit instruction to build early literacy success.

The climate has changed regarding early literacy. The NRP (2000) as well as NCLB (2001) focused the nation’s attention on the prevention and instruction of reading in children. Many scholarly researchers support the growing evidence of early detection and interventions may play a pivotal role in a child’s literacy success. As the number of students identified as SE is growing, sound early literacy support may combat LD referrals. The next section will discuss the LD construct and the referral process.

LD Construct

The purpose of the LD construct is the ability to identify students of low achievement whose underachievement is unexpected (Fletcher, 2007). The complexity of the LD construct, however, has been controversial and problematic due to unreliable identification of students with LD (Fuchs & Fuchs, 2006; Cameron, 2006). The long-standing process for which schools identify students with LD has been determined by researchers, advocacy groups, and policy makers as unfair, cost-inherent, and inconsistent (Mellard, Deshler, & Barth, 2004; Scruggs &

Mastropieri, 2002; McCook, 2006). Furthermore, the three step process to identifying students with LD does not lead to opportunities for learning (NASDSE, 2004). In the last thirty years, the cornerstone for the process to identify students with LDs is as follows:

First, students are referred, generally by the classroom teacher. Most often, referrals are based on reading difficulty, the teacher's capacity to effectively teach the student, and the teacher's bias as they generally associate these students as underachievers (See Fiorello, 2006; Mechek & Nelson, 2007; Dykeman, 2006; MacMillion & Silerstein, 2002; Fletcher et. al, 2005). According to Kavale (2005) teacher bias, expectations, and perceptions do influence student performance; therefore increasing the likelihood of referrals. He also argues teachers' beliefs of providing extra help for the students who are "difficult to teach" will often override district policies for LD referrals to ensure service. Consequently, the often-used referral process lacks validity and leads to the misidentification of students with LDs (Mellard et. a., 2004). Fuchs & Fuchs (2006) underscores the importance of a valid referral process. They warn the decisions to refer students for LD testing has substantive financial ramifications as the costs are up to three times greater to educate students with LDs.

A common phenomenon in SE identification is the overrepresentation of males. According to the United States Department of Education (2006), males outnumber females nearly two to one for SE services. A more alarming statistic is nearly 75% of students identified as LD are males. Researchers contend that males are referred more often due to behavior problems exhibited in the classroom (Wehmeyer & Schwartz, 2001; Sideridis et al., 2008) Conversely, females are less likely to be referred to they are encouraged to be more pleasant and passive (Wehmeyer & Schwartz, 2001). Furthermore, the referral process for SE is subjective. Thus, the practice of allowing teachers to refer based on personal biases and not student

outcomes may result in high rates of misidentification (Gresham et al, 2005). Shaywitz, Shaywitz, Fletcher & Escobar (1990) also argued the referral process reflects bias against males. Their study involved 215 females and 199 males in Connecticut public schools. The goal was to determine whether research-identified (i.e., Woodcock Johnson Reading Tests) or school-identified (i.e., Multi-grade Teacher Inventory) reading-disabled (RD) determination affected gender. The results of the study concluded there were not significant differences between males and females in RD using research-identified methods. Using this method, 8.7 % of males and 6.9 % of females were identified as RD. The findings of using the school-identified method for RD determination was notable different as 13.6 % of males and 3.2 % of females were classified as RD. The authors concluded that school-identified students are subjected to referral bias as teacher perceptions influence the referral process.

Next, a psychological evaluation is employed to determine eligibility. The most common definitional criterion for eligibility is the IQ- achievement discrepancy (Dykeman, 2001; Fletcher et. all, 2005; Dykeman, 2006) as 98 percent of the states use discrepancy in the definition or criteria for SE determination (MacMillion & Siperstein, 2002). The basic assumption of this criterion is if a student's achievement was measured far below expected levels, a placement in SE would likely be a result (MacMillion & Siperstein, 2002). Critics of this model, however, note the emphasis on IQ-achievement discrepancy model does not inherently show meaningful differences between poor readers with and without IQ-achievement discrepancies (Machek & Nelson, 2007; Mellard, Deshler, & Barth, 2004). Moreover, the discrepancy formula does not provide information as to the psychological process (e.i. phonological and language) to glean information to plan, implement, and evaluate pertinent interventions. (Gresham, 2001; Ofiesh, 2006; Petterson, Barley, & Gomez, 2005)

Finally, a team of school personnel or placement committees makes SE eligibility decisions based on evidence presented at placement meetings (MacMillion & Silverstein, 2002). Historically, teams generally use local or national norms to identify the lowest performing students as LD even though students may not be LD (Fuchs, Deshler, & Reschly, 2004; MacMillion & Silverstein, 2002). Instead of reviewing data from a variety of sources to ensure a comprehensive evaluation, teams generally made eligibility decisions based on the sole criterion of the IQ-achievement discrepancy (NASDSE, 2006). Machek & Nelson (2007) contend the most serious argument against this identification process is the continual absence of any student assessments used for determining LD and related interventions.

As an alternative to the widely used IQ-achievement discrepancy approach and three step identification process, RtI is a promising approach to LD identification. It has the potential to (a) reduce the rate of LD referrals to SE, (b) create better reliability in the identification of students with LDs, (c) reduce the over identification of certain students by reducing bias in the assessments, and (d) create a framework for the use of instructionally-sound data using progress monitoring, and interventions (National Joint Committee, 2005). As schools look toward implementing an RtI model, the identification of SE students should be a fundamental concern.

Response to Intervention as an Eligibility Classification

As noted in IDEA (2004), RtI is a component of LD determination. It serves as an alternate to IQ-achievement tool for the identification of LDs and has received considerable attention as a viable option for identification (NRCLD, 2007). According to Gresham, VanderHeye, & Witt (2005), using RtI as an approach for eligibility classification is based on the inadequate response to an evidence-based instruction rather than IQ-achievement tests. Gresham et. al. (2005) also adds RtI may be a viable framework for the identification of students with

LDs, but practitioners must consider a student's (a) low levels of performance in relation to peers, (b) slow rate of learning despite evidence-based interventions, (c) adverse impact of educational performance, and (d) exit criteria and goals for SE programming. They further argued student achievement should drive the decision making process. However, for practitioners to determine SE eligibility, researchers suggest schools must rule out (a) inadequate instruction, (b) insufficient system models, (c) and curriculum (See Fletcher, 2006; NASDSE, 2006).

Controversy surrounding RtI as an eligibility tool for LD identification exists today. The primary concern pertains to systemic accuracy and errors (NJCLD, 2005; Dykeman, 2006). For example, a student with a high level of intelligence who is LD may not receive services because his/her learning is within the normal range of their peers. An example of this would be a student who is not reaching their cognitive potential or capacity in the classroom. A second concern is the identification of underachievers who do not respond to interventions, but are not actually LD. An example of this would be a student who shows a slow rate of progress, but lacks the motivation to improve. Therefore, the student may be identified as LD, but in need of other specialized supports. This concern continues to be well documented in much scholarly literature, and many researchers note the need for additional field testing to operationalize and standardize RtI (Gresham et al., 2005; Dykeman, 2006; Fuchs et al. 2003; NRCLD, 2007). Gresham et al. (2005) further clarifies if RtI is used as a criterion for LD, assessments should have treatment validity and contribute to a more effective treatment to reduce LD rates.

Mastropieri and Scruggs (2005) also discuss a pending issue regarding the consistency of decision making in LD determination in RtI. Specifically, the variance of criteria measures, standards, and cut off scores between states. They suggest the need for clarification of these

measures before any national adoption of RtI for the identification of students with LDs. MDE (2010) for example requires schools to use (a) the student's response to scientific research-based interventions or (b) a pattern of documented strengths and weaknesses in performance and/or achievement relative to age. Interestingly, MDE (2010) allows individual schools and/or school districts to operationalize LD eligibility. For example, one school district's "decision rules for LD" may be different from another district's. Ironically, there may be parallels between the variances of measures between states and districts using RtI as the sole criterion for LD and the previously-used IQ achievement discrepancy. As previously mentioned, one complaint of the IQ achievement discrepancy was the variability of measures between states.

The current problematic and controversial identification of students with LDs are causing leading educational researchers to push RtI as an alternative to the I.Q discrepancy model (Dykeman, 2006; Fuchs et al, 2003). Although RtI does not have national operational standards for identifying students with LDs, its framework is a promising approach in the early identification and prevention of academic deficiencies and is promoted as a reliable, valid and fair alternative (See Berninger, 2006; Dykeman, 2006; Fuchs & Deshler, 2006). Many school districts are turning to this model to afford students earlier and quicker learning support (Fuchs et al., 2003; Fuchs & Fuchs, 2006). The model and its framework are discussed in the next section.

RtI Construct

The concept of RtI entails delivering sound educational practices to improve the learning process (NJCLD, 2005). Its underlying principles noted earlier, promote the intent to afford struggling students opportunities for learning including those with disabilities. The infrastructure of this emerging construct requires multiple components and coordinated efforts within the entire

school. In order for this to happen, a unified sustainable system must be in place (Danielson, Doolittle & Bradley, 2007).

Horner (2003) defines a systems approach to a school as “a unit of analysis” or the individual’s collective actions that contribute to a school’s characterization. He further adds an organization is a collective group of people who engage to achieve common goals. In order for an organization to be sustainable, systems are needed to support the efforts of its people. Thus, an effective organization must give priority to a system which supports the selection and implementation of sound practices and policies (Horner, 2003). Prior to IDEA (2004), there were many dual systems in schools: special education, gifted, general education, and at-risk which created a lack of systemic coordination and conflicting structures (McCook, 2003). To further compound the disjointed system, resources (i.e. teachers) were not always available to those who are most in need (McCook, 2003). Today, schools are recognizing the importance of meeting the needs of diverse students and using all resources to maximize on-going reform efforts (Center on Positive Behavior Supports, 2004). Horner (2003) argues cohesive systems are necessary to support best practices of individuals within a system. Interestingly, Fletcher (2006) contends RtI has the potential of creating a seamless system.

A unified RtI system makes several assumptions about servicing students. According to NASDSE (2006), a general education problem solving model must be in place for all students including students with LDs. Thus, all students are afforded a structured and systematic model for support which requires careful school-wide planning and implementation. Second, struggling learners are best serviced in the general education classes and not in separate classrooms for learning support. NASDSE (2006) contends a unified system does not segregate students based on disability labels or risk factors. Third, general education is effective for the vast majority of

students, and schools should use their collective resources in the general education classroom to prevent learning problems and behavioral issues from becoming more significant. Finally, a unified system provides a framework for continual improvement. A well-integrated systems approach for general, special education, and gifted students, parallels student and teacher needs (NASDSE, 2006).

Operationalize of RtI

According to Fuchs & Fuchs (2006a), RtI has two functions: early intervention and sound instruction and assessment. Although there are various methods to operationalize RtI, many current models favor a three tier system to employ those functions (Compton et al., 2006; Clements, Bolt, Hoyt, & Kratochwill, 2007; Cameron et al., 2006). Figure 1 depicts a common three tiered model.



Figure 1. The Three Tier Model (National Center on Learning Disabilities, 2006)

Tier 1 is the least intensive level that contains the core curriculum in which 80-90% of students will be academically successful (NJCLD, 2005). It consists of (a) school-wide universal screening of all students in the general education setting after sound reading lessons are provided, (b) frequent monitoring of progress, and (c) sound educational practices (NRCLD, 2007). The intent of this tier is to ensure all students receive early help to remediate academic difficulties, thus potentially reducing SE referrals (NJCLD, 2005). Current screening methods for Tier 1 include: criterion reference and norm-referenced reading tests, curriculum-based assessment, and classroom-based assessments (see Compton et al., 2006; Fuchs et al., 2003; Davis et al., 2007). According to Compton et al. (2006), RtI relies heavily on accurately screening students with the intention of producing a high percentage of true positives (e.g., rates above 90%). Screening measures include DIBELS, AIMSweb, and Texas Primary Reading Inventory for identifying students with at-risk academic behaviors (see Telzrow, 2005; Glover, 2007).

Within the RtI framework, it is crucial that the accuracy of the risk pool for Tier 2 is determined to eliminate systematic errors. For example, type I errors are false positives which erroneously place students into Tier 2 instruction. These students do not need interventions and will become successful readers without additional support. The second error, type II errors, produces false negatives resulting in a failure to identify at-risk students who are in need of interventions. Having true-positives, effectively identifying students placed into Tier 2 is critical for successful implementation of RtI. Moreover, the identification of students who are placed into Tier 2 and Tier 3 are based on sound assessments, not teacher bias or other factors such as socioeconomic status, gender, or minority group memberships (MacMillion & Siperstein, 2002).

After sound general education practices has been established, students identified as at-risk based on universal screening and supplemental instruction are placed in Tier 2. Generally, 5 to 10% of the students may move to this tier if their performance and rate of progress lags behind peers (NJCLD, 2005). It consists of (a) extended interventions lasting nine to 12 weeks, (b) progress monitoring up to 3 times a week, and (c) increasing the frequency of interventions, (RtI Manual, 2006a). According to NRCLD (2005), the interventions afforded to the students should be judged on whether they are producing positive levels of performance and providing data for decision making purposes. Vaught and Fuchs (2003) also report Tier 2 assessments must be linked to effective instructional classroom practices. For example, if Tier 2 students respond to interventions and are no longer considered at risk, students will return to Tier 1. Conversely, students who do not respond to Tier 2 interventions will move to Tier 3.

Between 1- 5% of students who fail to respond or improve will receive additional specific and intensive designed interventions in Tier 3 (NJCLD, 2005). It consists of (a) intensive individual or small group instruction, (b) extended interventions lasting longer than 12 weeks, and (c) frequent progress monitoring (RtI Manual, 2006a). Over a period of time, and if a student fails to respond, a SE referral may be considered (Denton, Fletcher, Anthony, & Francis, 2006). Cameron, (2006) urges caution in placing Tier 3 students in LD as it may take considerable time for students to respond to interventions. Nonetheless, if students are unresponsive to interventions, a comprehensive evaluation conducted by a multidisciplinary team may be necessary to determine eligibility. This may include gathering data from multiple sources of student assessment data, standardized and norm-reference measures, and observations made from parents and teachers (NJCLD, 2005; McCook, 2006; Cameron et al., 2006). For the purposes of this study, it is important to note that the lack of national unified procedures and the variability in

applying eligibility in Tier 3 may lead to potential errors in identification (See Dykeman, 2006; Fuchs 2006).

Currently, the operationalization of RtI differs across the nation (Fuchs et al., 2003). Within the framework, schools have varying tiers of support, varying decision rules, and teacher roles. As IDEA (2004) permits schools to spend up to 15% of SE monies for early intervention activities, Fuchs and Deshler (2006) assert the federal statute on RtI is “bereft of procedural detail” (p. 130). They argue many questions need answered before successful wide-scale implementation can take place. One question each school must resolve, for example, is which instructional delivery model would best serve them. The next section discusses the various models associated with RtI.

RtI Instructional Delivery Models

A vital component to the RtI framework is determining the appropriate instructional delivery approach. According to Fuchs et al. (2003), there are two basic instructional delivery approaches: (a) RtI problem solving approach and (b) RtI standard protocol approach. They further assert both conceptual models are designed to eliminate or reduce an academic deficit and have promising use for schools. Although both models are sound, Fuchs & Fuchs (2006) urge caution when determining SE eligibility as both approaches need further exploration.

For SE eligibility, schools must examine which instructional delivery model provides positive student outcomes. Interestingly, there are notable differences between the two approaches. For example, Gresham, VanDerHeyden & Witt (2005) assert the problem solving approach lacks sufficient evidence as practitioners infrequently evaluate the fidelity of the interventions. Fuchs et al. (2003) further argue there is a lack of evidence this approach works with improving classroom behavior. The standard-protocol approach promotes better quality

control of interventions and instruction due to the validated treatment protocols, but lacks sufficient research base from practitioners (Gresham, VanDerHeyden & Witt, 2005). The next section explicates the differences between the two approaches.

Problem Solving

The problem-solving model is a well-recognized instructional delivery model that uses a collaborative problem-solving method for the determination of interventions for students whose performance is lagging behind their peers (Upah & Tilly, 2002). A feature of this model underscores the belief that a given intervention will not serve all students, thus this model is not presumptive (Fuchs et al., 2003). Simply, schools should change the intervention if it does not improve achievement. One pitfall of this approach, however, is the high level of expertise required due to the accuracy of the interventions afforded to the students (Fuchs & Fuchs, 2006). They contend this model, although addresses individual student academic deficits, may not impact the source of the problem as a combination or “hybrid” of interventions may be necessary to improve achievement. The effectiveness of this model is built upon student’s response to interventions to a four stage process. Figure 2 displays the four basic steps in the problem solving model.

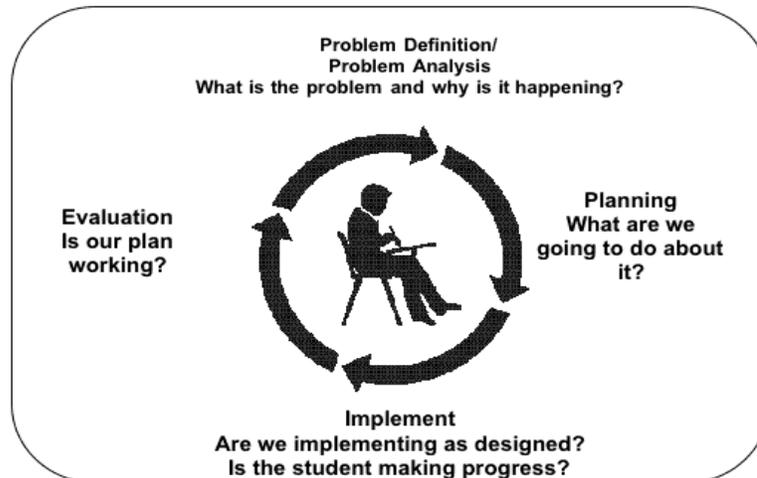


Figure 2. The Problem Solving Model (NRCLD, 2007)

Ikeda & Gustafson (2002) discusses the four step problem solving model for a Three Tier RtI framework in a study at Iowa’s Heartland Area Educational Agency (HAEA). The agency serves 25% of all Iowa students, comprises 136 rural and suburban schools, and 9,000 teachers. The problem-solving model (See Figure 2) was precipitated by the growing concerns at the Iowa Department of Education regarding the IQ-achievement discrepancy model and meeting the needs of the at-risk.

Throughout all four levels, HAEA utilized a problem-solving model for identifying educational strategies for students. According to Ikeda and Gustafson (2002), the advantages to this model are the exclusion of standardized achievement tests and the inclusion of multiple sources of student data that provides for repeated opportunities for learning. The first step in problem-solving model is to analyze and assess to clearly define the problem. According to Jimerson, Burns, & VanDerHeyden (2007), identifying the problem, or the difference between the expected and actual student performance, is the first essential step to any problem solving model. In HAEA, school personnel review a student’s current performance and environment,

which may include inferior instruction, curricular issues, and behavior, to develop a plan and a series of interventions to address the problem. Next, goals and progress monitoring are developed to determine the effectiveness of the plan, and school personnel implement the plan based on identified problem previously referenced. The importance of progress monitoring and implementing the plan with integrity is vital to a student's success as the data is used for evaluation of the plan (Jimerson et al., 2007). Finally school personnel draw conclusions from analyzing the data and a reevaluation of the plan may be deemed necessary.

In Ikeda and Gustafson's (2002) study, they collected data from 4% of HAEA's schools in 1999-2001 to determine the effects of the problem solving model on student referral rates. The model was initiated once a teacher identified a student who may need additional academic support and parents were contacted to resolve academic concerns. If deemed ineffective, building assistance teams (BAT) were utilized to define the problem and assist in the planning and implementation of interventions. If a student was not successful, additional highly-trained practitioners redesigned and coordinated all aspects of interventions and evaluations. SE was only considered for a student who was academically unsuccessful with the prescribed interventions. According to Ikeda and Gustafson (2002), HAEA required the following criteria for SE referrals: (a) a student's rate of learning has not significantly improved and interventions are too demanding for general education; (b) the student's level of performance is significantly lagging compared to peers; and (c) instructional needs are beyond general education parameters.

In examining the impact of the problem solving model on SE referral rates, Ikeda and Gustafson (2002) indicated a substantial number of students were aided in the problem solving model without SE referrals. However, schools referred 34% of their students to the problems solving team for SE consideration. Of those referred, 22% actually entered SE. It is important to

note their research was problematic as they failed to include district, school, and student outcome data to substantiate their findings. An additional problem of the study was the claim BATs “resolved” 20% of student problems in year 1. Yet in year two of the study, 34% of students have repeatedly been referred to BATs. This data appears to conclude there may be many false negatives as students who successfully participated in BATs in year one continued to perform poorly in general education. In summary, the absence of data and details weakens this study significantly.

Standard-Protocol Approach

The standard-protocol approach is an alternative to problem solving approach by using validated protocols or interventions for all students in a particular domain (e.g., reading fluency) (Fuchs & Fuchs, 2003). Instead of analyzing each individual who does not sufficiently respond, all students with similar needs will receive validated interventions with standard protocols. The advantage of this approach is the fidelity of treatments as they are closely controlled, and staff training is straightforward as the protocols are often manualized (Fuchs & Fuchs, 2003). Conversely, students who do not respond to the protocols will require additional planning and analysis (Jimerson et al., 2007).

This approach was illustrated by Marchand-Martella, Martella, Kolts, Mitchell, and Michell (2006). The study involved 327 K-3 students in a title I elementary school in the Pacific Northwest. Student participants were 72 kindergarteners with 6 receiving SE services, 86 first graders with 10 receiving SE services, 80 second graders with 6 receiving SE services, and 89 were third graders with 6 receiving SE services. In addition, 14 teachers with varying backgrounds participated. The goal of the study was to determine the effectiveness of a standard-protocol model using the targeted curriculum of the comprehensive multi-reading level

program Reading Mastery Plus (RMP) in a Three Tier model. Given the highly manualized nature of this program, teachers were expected to (a) participate in 2.5 days of training, (b) follow format outlines and pacing of the lessons, (c) utilize specific praise statements and signals to evoke student feedback, and (d) utilize proper corrective procedures. Additionally, each teacher was rated by the consultant to verify the fidelity of the program. To measure success, pre and post measures using DIBELS were used in K-2, and Scholastic Reading Inventory was used in third grade.

Once initial screening took place at the beginning of the year, students were grouped in tiers according to academic need. In Tier 1, 235 students received 90 minutes a day of reading instruction with RMP accounting for 30 to 45 minutes of this time. 64 Tier 2 students received 60 to 90 minutes of reading instruction with RMP in small group settings. Only third grade students in Tier 2, who qualified for Title I services, received additional before-school tutoring with supplemental instruction. In Tier 3, 28 students received 110 minutes a day of reading instruction using RMP utilizing focused groups in the SE classroom. Additional individualized intensive interventions using RPM and motivational supports were included.

Their study compared pretest and posttest DIBELS subtests to determine statistical significance and found K-2 students saw significant improvements in reading skills. All third grade students also saw significant improvements as their pretest and posttest improvements resulted in more than half of a standard deviation on all subtest. Interesting, the authors noted the few differences in students who receive SE services and title I students. They concluded SE students benefited from this approach as their scores were not lower than other students.

Although this study showed Reading Mastery Plus could be implemented with fidelity, it is

important to note consistency of implementation is essential in any standard-protocol method (Fuchs et al., 2003).

Both instructional delivery models have common components: (a) scientifically based research interventions, (b) continuous monitoring, and (c) adjust interventions based on student data (Berkley et al., 2009). Collectively, these components provide students who have academic difficulties opportunities for learning. As schools determine which instructional delivery model to adopt, a successful model should also include monitoring the integrity of the interventions for instructional fidelity as it will determine the efficacy of the model used (Berkley et al., 2009). An additional method to measure efficacy of RtI components is curriculum based measurement (CBM).

Curriculum-Based Measurement

Due to the emphasis on academic growth and documenting progress over time (e.g., NCLB, 2001 & IDEA, 2004), a practical and useful measurement tool is necessary to measure student outcomes. CBMs are a widely used form of assessment to track students' academic progress in areas of math, reading, writing, and spelling (Fuchs & Stecker, 2001). The goal of CBM is to provide an efficient measurement system that (a) produces accurate and meaningful information with which to measure growth; (b) answers questions about the effectiveness of programs and interventions; and (c) provides student data to assist teachers in planning instructional programs (Deno, Fuchs, Marston, & Shin, 2001). The measurement tools, which often provide alternative forms for frequent probing of student achievement, have a substantial research base and demonstrate strong reliability and validity by the standardization of the procedures (Fuchs & Stecker, 2001). Generally, the CBM samples are tasks (i.e. reading aloud from a text, selecting words deleted from text) administered three times yearly. The performance

indicators obtained from the probes indicate student achievement in relation to current instructional goals and interventions. It also serves as an alternative to standardized tests and is designed to correlate to the general curriculum. CBM differs from classroom criterion-referenced assessments as they are based on mastery of short term instructional objectives (Dexter & Hughes, 2009). Interestingly, Fuchs & Stecker (2001) suggest student achievement is higher when teachers use CBM for instructional decisions. Therefore, they are used by many schools across the country in the RtI framework.

The RtI framework necessitates the use of CBM as it determines whether students are benefitting from the instructional programming. A variety of commercially-produced CBM tools are available for educational settings (i.e. DIBELS, AIMSWeb, and Intervention Central) to assess students' growth over time (RtI Manual, 2006a). One example of a widely known, reliable, and frequently used measure is DIBELS. This measure had been designed to assess basic early literacy skills of (a) phonemic awareness, (b) alphabetic principle, (c) accuracy and fluency reading connected text, (d) comprehension, and (e) vocabulary/oral language (Center of Teaching and Learning, n. d.). The assessments are a series of short probes to monitor rates of improvement whereby improving instructional planning and validating growth. According to Good, Simmons & Kame'enui (2001), CBM can signal early literacy difficulty in students before academic problems worsen.

In a CBM study, Hagen (2008) investigated the intervention validity of two early literacy measurement tasks from DIBELS: (a) non-sense word fluency [NWF] and (b) phoneme segmentation fluency [PSF]. Both tests are designed to assess early literacy skills in quick one minute probes. NWF tests letter-sound correspondence as students are asked to verbally produce letter sounds for nonsense words. PSF tests a student's ability to segment words into phonemes.

For example, if the examiner says “cat”, a student would receive three points for responding “/c/ /a/ /t/”. As students respond correctly, they receive points for correctly associating sounds with letters.

The participants in this study consisted of 75 socioeconomic disadvantaged first grade students in three elementary schools in the Pacific Northwest over a 12 week period. School 1 served as the control site whereas School 2 and School 3 served as the experimental group. Students were assessed in PSF and NWF prior to the study, and weekly alternative probes were administered during the study. School 2 and School 3 received early literacy instruction and interventions over a 10 week period using the Phonemic Awareness in Young Children instructional program in addition to daily reading programs. Data from the weekly probes were used for grouping and guiding instruction for participating students in School 2 and School 3. Daily lessons were scripted and centered on initial and final phonemes, segmentation, blends, and letter-sound correspondence.

Results of this study concluded 96% of School 2 and School 3 participants who received instruction resulting from DIBELS PSF measure attained benchmark levels. Compared to 64% of School 1 participants achieved similar outcomes. Interesting, participants in all schools measured similar positive gains in the NWF measure. The authors’ explanation of this outcome was attributed to the minimal amount of instruction time devoted toward this skill at all three sites. In conclusion, DIBELS PSF appears to effectively monitor student progress which can lead to positive student gains. Additionally, this study strengthens Fuchs and Stecker’s (2001) assertion that CBM’s are reliable and can track academic progress.

CBM is also gaining interest as an alternative tool for the identification and monitoring of students with LDs (Deno, 2003). According to NRCLD (2006), CBM provides reliable and

frequent continuous monitoring of student achievement data for SE eligibility determination. They also argue traditional measures for achievement used in SE fail to provide useful assessment information to design instructional programming. Whereas the data resulting from CBM allow teachers to tailor instruction to meet individual needs and provides on-going documentation of student achievement. More importantly, a SE student's individual educational program (IEP) requires progress monitoring that communicates his or her progress toward goals. In summation, this alternative approach to SE eligibility addresses the need for reliable and useful student data for eligibility.

As the federal government promotes the use of RtI, Michigan schools must consider many foundational constructs: (a) multi-level tiers; (b) instructional delivery models; (c) eligibility criteria; and (d) assessment measures. Due to the lack of a national RtI model, MDE has put forth an initiative to address the constructs as well as focus on the increasing number of students with challenging behavior. The next section discusses the project as well as the foundational tenants.

MiBLSi Framework

Society views schools as responsible for ensuring safety of all students although they are confronted with the increase of challenging behavior and violent acts (Sugai, Sprague, Horner, & Walker, 2002). Traditionally, school approaches to challenging behavior have been reactive (i.e., zero tolerance) or punitive for inappropriate behavior even though there is little evidence that these approaches work and may lead to repeated misbehavior (Knesting, 2001; PBIS, 2009). Moreover, behavior problems are the number one reason students with LDs are moved from the classroom (Sailor et al., 2006; Zhang Katsiyannis & Herbst, 2004; Lewis & Sugai, 1999), Critics also argue the “get though” or the zero tolerance approaches are only short term solutions,

and schools should explore alternative preventative approaches (Knesting, 2001; Noam, Warner & Van Dyken, 2001).

In Michigan, zero tolerance policy (ZTP) refers to disciplinary practicing mandating automatic suspension or expulsion from schools (Michigan Nonprofit Association [MNA], 2003). This policy was a byproduct from federal policies such as Gun Free Schools Act (GFSA) of 1994 which targeted the seriousness of bringing weapons into schools. Michigan broadened the ZTP to include arson, criminal sexual conduct, and physical assault against school employees (MNA, 2003). Although Michigan's ZTP requires school districts to report expulsion data of all students to the state school superintendent, the data is not collected in a uniform way (MNA, 2003). In a report published by MNA (2004), they issued a series of findings pertaining to Michigan students and ZTPs. They also report their findings were extrapolated due to the state's variability in collecting expulsion data.

First, Michigan, along with 26 other states, have enacted additional provisions to expel students under GFSA (2004) to include look alike weapons such as toy guns and butter knives. The report indicates schools have varying interpretations of a "weapon" although GFSA (2004) is very specific in its definition. Second, fighting/physical assaults are the topmost reason students are expelled in Michigan. An analysis of data in 1999-2000 revealed of the total number of students expelled from Michigan schools, 38% was for fighting, 16% were for weapons, 15% were for verbal assaults, 8% related to drug possession, 2% for alcohol use, and 1% for vandalism, arson, and theft. Included in these findings, youth of color, specifically African Americans and Hispanic students were disproportionately expelled or suspended compared to Caucasians. The report specifically noted Lansing School District 1999-2000 school year data indicating 51% of expelled students were African American although they represent on 33% of

the student body. Additional student data concluded males and youths grades 6 through 9 are more likely to be expelled. The third finding of this report indicated students with LDs are disproportionately expelled under MZT. In 1999-2000, 19.6% of students expelled were SE certified and, in some cases, school failed to provide follow up services for these students. The report also identified student behaviors such as depression, truancy, antisocial behaviors, anger, and impulsivity were contributing risk factors to expulsion. Interestingly, they suggested schools employ early intervention and treatment alternatives to those students who are behaviorally at risk. Reshley (2009) further affirmed the most effective way to reduce disproportionality in SE is to provide preventative measures in literacy and behavior supports.

Zhang et al. (2004) also argued students with LDs are subjected to suspensions across the nation. They analyzed disciplinary school data published by the US Department of Education by examining exclusionary practices (i.e., short term and long term suspensions and removal by school district) of all 50 states during a four-year period of 1998-2002. Their results indicated an increasing trend of student-exclusionary practices in four disability categories: LD, emotional disturbances (ED), mental retardation (MR), and all disabilities (AD) with students with ED representing the largest cohort followed by students with LDs, and students with MR respectively. Data from schools years 1999-2000 and 2000-2001 revealed minority students, particularly African American, American Indian, and Hispanic, had significantly higher suspension rates compared to Caucasian students. In their conclusion, they called for a need of school-wide behavioral and instructional intervention program, specifically PBS, to address this growing trend.

In Michigan, for example, the State Board of Education in Michigan adopted a PBS policy in 2006 stating districts are required to implement PBS systems that promote appropriate

behavior and positive learning environments (MDE, 2006). They further noted that students should receive a continuum of methods to address and maintain appropriate prosocial behaviors. In related literature, MDE (2010) highly recommends each district identify behavior support specialists to guide, coach, and support PBS efforts although noting that each district may not have access to a PBS specialist.

As mentioned previously, MiBLSi a MDE, Office of Special Education and Early Intervention Services initiative established in 2003 in response to the federal government's "response to intervention" legislation. In 2003, the pilot cohort was hand selected by MiBLSi under the direction of MDE Office of Special Education and Early Intervention Services. The pilot cohort, Macomb and Ottawa Intermediate School Districts and Kalamazoo Regional Educational Service Agency, were funded by the MDE and the federal government to create a state model integrating PBS and RtI. To assist schools in the early phases of MiBLSi, the pilot cohort, Cohort 1 and Cohort 2 were also aided in \$720,000 in federal funds that were used to "support training and technical assistance, provide resources for information systems, and provide mechanisms for planning and problem solving meeting in participating schools" (Erwin, Schaughen, Goodwin, McGinchey & Matthews, 2007, p. 360). Federal funding ended for this state project in December 2005, and future cohorts did not receive any federal monies. It is currently in its seventh year and has partnered with more than 300 schools throughout the state of Michigan (2009).

The program's design utilizes the previously mentioned RtI constructs to strengthen student reading performance while adding PBS to reduce behavior problems. The goals of the project are to help (a) schools launch PBS; (b) establish school-wide information systems (SWIS); (c) train teachers in DIBELS; and (d) assist in data collection and interpretations

(MiBLSi, 2003). The foundation of MiBLSi is rooted in the work of Robert Horner, Alumni-Knight professor in Special Education in the College of Education at the University of Oregon. He also co-directs the National Technical Assistance Center on Positive Behavioral Interventions and Supports and the Positive Behavior Research Unit with the College of Education at University of Oregon. MiBLSi (2004a) utilizes the following six ideas based on Horner's (2003) work for their framework: (a) systems' approach; (b) data-based decision making; (c) invest in prevention; (d) multiple levels of reading and behavior support; (e) team-based approach; and (f) committed leadership and staff. The implementation of the tenants is a school-wide endeavor. The following sections discuss the tenets in detail.

Systems Approach

Schools are multifaceted systems which often lack the capacity to sustain practices, policies, and systems to effectively and efficiently meet the needs of challenging learners (Sugai et al., 2000). The inability to contextually fit practices, procedures, and the learning environment to sustain a healthy school culture is impacting students and school communities (Horner, 2003). In order to address this challenge, a systems approach is crucial to support the organization's individuals and their use of best practices within an organization (CSEP, 2009). Horner, Sugai, Todd, & Lewis (2005) define a system as "policies, practices, staffing patterns, budgets, team structures, administrative leadership, operating routines, staff training, and action plans that affect the behavior of adults in schools" (p. 366). A school-wide PBS systems approach highlights the implementation of evidence-based practices and procedures that contextually fit with school improvement goals and reforms (Center on Positive Behavior Supports, 2009). Moreover, this approach is guided by the following four interacting elements to monitor and improve school efforts: (a) outcomes, (b) practices, (c) data, and (d) and systems (Sugai &

Horner, 2006). First, schools create measureable outcomes for academic and social behaviors which are supported by the school community (e.g., teachers, staff, students, and families). Next, schools identify evidence-based practices and strategies to meet established outcomes. Third, data allows the schools to document current practices and effects of interventions. Finally, schools create the necessary systems to sustain implementation. Figure 3 illustrates the elements working together to support the on-going PBS process.

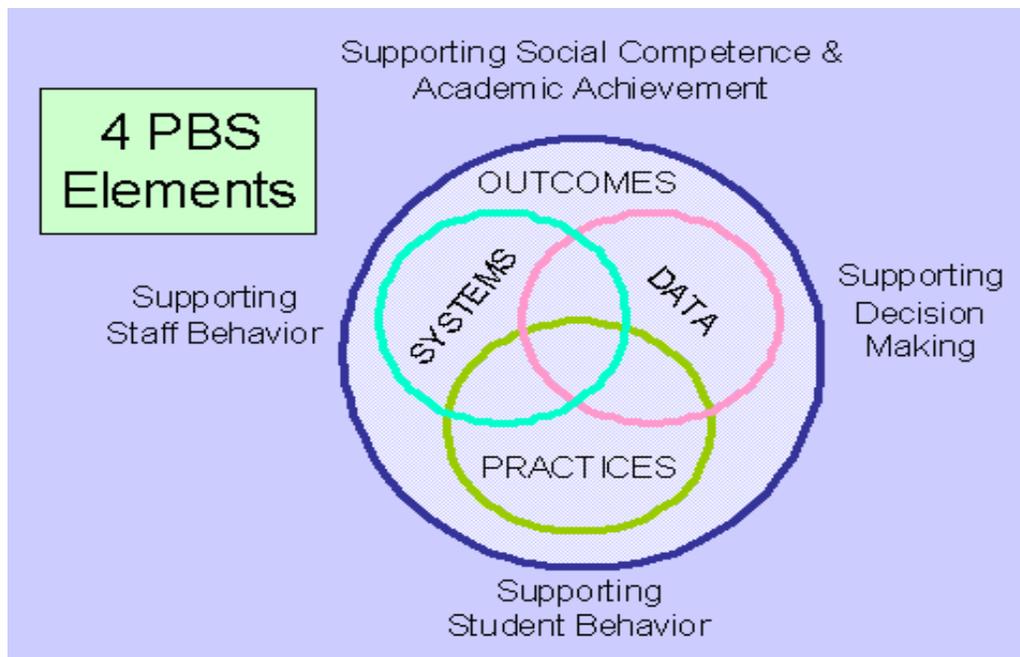


Figure 3. PBS Elements (Sugai & Horner, 2006)

Implementation of SWPBS systems across states is growing. According to Blonigen, Harbaugh, Singell, Horner & Ivin et al. (2008), 4,700 schools in 30 states are adopting this approach to support academic achievement and improving social skills. Additionally, the Office of Special Education at the U.S. Department of Education funds the Center on Behavioral Interventions and Supports at the University of Oregon. This center, renowned for its current

research on PBS, continues to provide training and technical support to schools nationwide. MiBLSi draws upon the researchers at the Center for assistance as it references the Center on Behavioral Interventions and Supports in its literature.

MiBLSi's systems approach parallels the four elements of a school-wide PBS framework (MiBLSi, 2009). To monitor and evaluate the MiBLSi system's approach, schools must document efforts to meet their annual behavioral goals by completing an annual System-Wide Evaluation Tool (SET) (MiBLSi, 2009c). The tool requires schools to respond to the following behavioral questions: (a) Are behavioral expectations clear? (b) Are behavioral expectations taught? (c) Is there a sustained reward system for good behavior? (d) Are behavioral violations addressed? (e) Is there on-going monitor and decision making? (e) Are there levels of support? (f) Is management addressing concerns? According to MiBLSi (2009c), feedback of results is prompt, thus allowing schools to assess levels of fidelity and identify strengths and weakness of the PBS system approach.

Data-Based Decision Making

A fundamental element for a successful PBS approach is the regular, accurate systems for collecting, summarizing, and reporting of student data (Sprague & Horner, in press; Sugai & Horner, 2006). The systematic compilation of student data (e.g., attendance, SE referrals, office discipline referrals (ODRs), detentions, DIBELS, and archival records) allows educators to evaluate the school's current PBS practices of universal screening, interventions, and academic and behavioral outcome efforts (Sugai & Horner, 2006; MiBLSi, 2009b). Sugai & Horner (2006) argue PBS schools must have an easy and efficient system for recording (a) individual behavioral incidents including time and location, (b) ODRs and suspension data that include the defined and measurable problem behavior, and (c) individual teacher ODRs. This data can reveal the school's

discipline climate as well as guide the behavioral and academic improvement efforts of the school.

MiBLSi schools are responsible for completing four PBS data tools to measure student and process outcomes (MiBLSi, 2009b). First, the Effective Behavior Support Team Implementation Checklist, completed quarterly, is a tool to monitor implementation of SWPBS efforts. The data will guide a building leadership team's direction of professional development and school improvement efforts regarding PBS. Second, the Effective Reading Support Team Implementation Checklist, completed quarterly, assists schools in monitoring reading supports. As well as the previously mentioned SET, schools must use the School Wide Information System (SWIS) to monitor student discipline as a means to measure a school's overall behavioral health (MiBLSi, 2009). Schools are also responsible for regularly inputting suspensions, ODRs, and major and minor behavioral incident data. Interestingly, student discipline data published by MiBLSi (2009) suggested major discipline referrals (MDRs) in the early adopting cohorts have significantly declined. Over a three year period, the pilot cohort, MDRs decreased 20%. Cohort 1, with 2 years of student data, and Cohort 2, with one year of student data, MDRs decreased 64% and 10% respectively. Finally, schools have a voluntary option to submit new SE referrals on the Special Education Tracking Form (SETF). The form identifies students by (a) grade, (b) sex, (c) ethnicity, (d) free or reduced lunch eligibility, (e) referral concern, and (f) whether students were certified for SE services.

Prevention

The next major tenet promoted by Horner (2003) is the importance of prevention. The goal of this construct is to “prevent the development of new cases of problem behavior by focusing on all students and staff across all school settings” (OSEP, p. 17). He recommends

schools use a three-tier approach to the prevention-focused continuum of support by creating and promoting (a) school-wide expectations, (b) universal interventions, (b) secondary interventions, and (d) tertiary interventions. He further suggests schools define, teach, monitor and reward appropriate behavior as it builds a positive school-wide culture. As mentioned previously, school practices contribute to serious behavior problem, and often times use a reactive and aversive approach to managing behavior problems. Consequently, a preventative and proactive approach to the development of behavior problems, which is designed to improve the school environment as well as students academic and behavioral success, is a necessary tenant in promoting the goals of academic achievement and social development (Horner & Sugai, n. d.; Sugai & Horner, 2006; Sprague & Horner, in press).

Lewis, Colvin, and Sugai (2000) provide insight into the prevention of behavior problems by enacting school-wide social skill training which was conducted at a neighborhood suburban 475 student elementary school. Their study measured the effects of teaching school-wide social skills with active supervision of trained staff during recess. The student participants participated in school-wide recess/playground rules and related social skills lessons for one week. Additionally, playground monitors participated in active supervision training to (a) reinforce school rules, (b) correct students if a violation occurs, and (c) increase physical movement and visual scanning of the environment. Student expectations were (a) keep hands and feet to themselves; (b) appropriately use school equipment; (c) join games in appropriate way; (d) appropriate language; and (e) problem solve if conflicts arise. Prior to each recess, student expectations were reviewed. Six trained special education graduate students, using paper and pencil, gathered seven days of baseline data prior to recording frequencies of target behavior for third, fourth, and fifth grade students at recess. Although the researchers did not provide

statistical data, they indicated an overall decrease in the rate of student problem behavior (e.g., hitting, pushing, kicking, and name calling) during unstructured settings. This study, however, is limited to one elementary school and the authors note the difficulty of identifying all behaviors due to the large number of students. Nonetheless, the study does contribute to Horner's (2003) position of the positive effects of teaching pro-social behavior in a school-wide setting.

As mentioned previously, a MiBLSi school-wide prevention program is designed to (a) teach appropriate and expected behavior and relevant social skills, (b) monitor behavior, (c) encourage appropriate behavior through reinforcements, and (d) correct inappropriate behavior (MiBLSi, 2004). An example of a MiBLSi prevention program is illustrated by Comstock East Elementary School, Kalamazoo, Michigan. Their school-wide prevention program contains 13 separate behavioral expectation teaching lesson plans centering on the themes of "Be safe, Respectful, and Responsible". Teacher lessons include the rationale, observable student behaviors, lesson dialogue and practice, and lesson reinforcement ideas and materials. Additionally, all lessons are coordinated by the schools' PBS team, and all staff members must monitor student behavior throughout all school settings. Furthermore, a reward system is an integral part of their school-wide prevention program. They utilize punch cards, tickets, and reinforcers to promote positive and expected behaviors. Leading researchers contend the use of rewards and positive reinforcement enhances a school's culture and values, thus reducing challenging and spending more time engaged in academic instruction (Lewis & Sugai, 1999). Additionally, Tobin & Sugai (2005) contend the frequent engagement between staff and students can lessen problem behaviors and improve academic achievement. MiBLSi operationalizes this construct using a three-tier RtI framework.

Three-Tier Framework

Horner's (2003) fourth tenet to an effective PBS program is building multilevel systems of behavior and reading supports. He asserts high-quality instruction in a multileveled support system can reduce problem behavior as students are more engaged in academic lessons. Although RtI framework focuses on academic achievement and evidence-based literacy practices, PBS practices center on behavioral needs within the same tiered system. Figure 4 illustrates a common three tier academic and behavioral models.

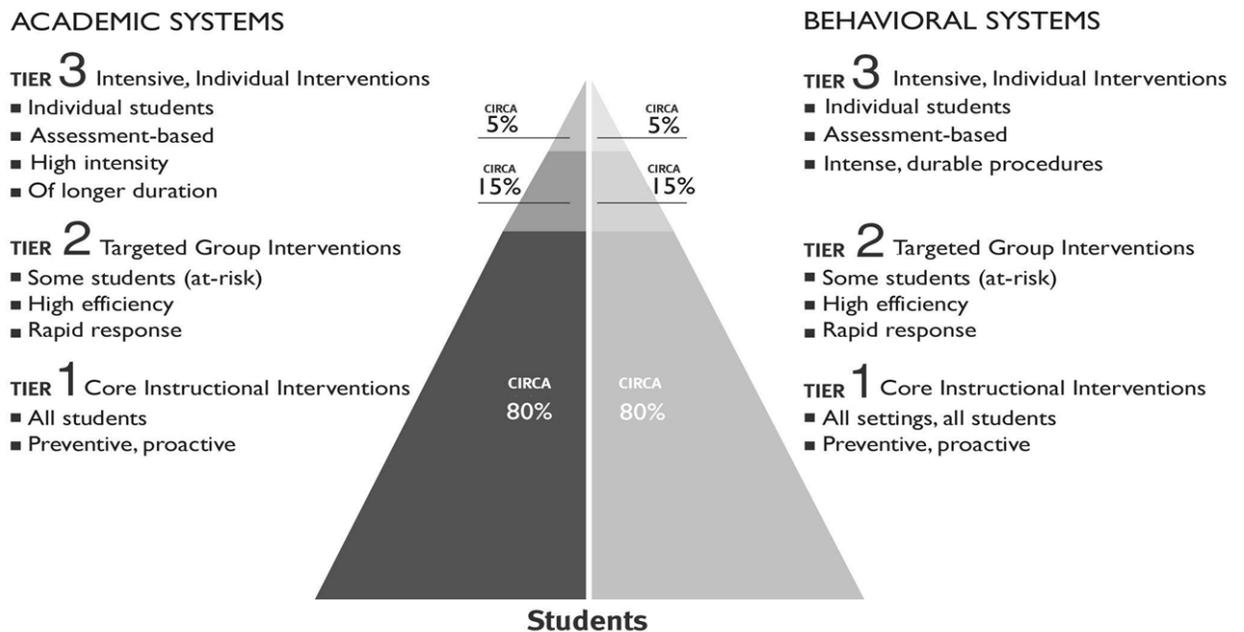


Figure 4. Integrated Tier Model (NASDSE, 2006)

MiBLSi (2004) follows the common three tiered integrated RtI model. To support schools in this model, MiBLSi schools receive training from regional or state trainers to aide in the creation of a comprehensive research-based support system for screening, progress monitoring, and interventions. In addition, school participants can attend numerous MiBLSi

workshops across the state of Michigan to develop skills and effectively coordinate the tiered model. The training sequences, completed in phases, begin with Tier 1 development.

Tier 1 is built on the premise that early intervention and prevention is necessary to reduce behavior problems (Horner, 2003). At this level, schools provide all students the necessary support to prevent or reduce behavioral and academic problems using core instructional interventions (Sugai & Horner, 2007). School-wide PBS universal interventions generally center on classroom management and redesigning the school environment to include school-wide behavior reward system (Lewis & Sugai, 1999). Common behavioral interventions may include (a) using 5-8 positive interactions for every negative interaction, (b) decrease transition times between activities, (c) give immediate corrective feedback for behavior, and (d) provide ample opportunities for student to respond to instruction (Sugai, Guardino & Lathrop, 2007; Tobin & Sugai, 2005). The Center for PBS (2004) contents Tier 1 is effective for 80% of the students, and schools should continually review and improve Tier 1 student progress toward school-wide behavioral goals.

Universal screening for all students, especially for emotional or behavioral disorders (EBD) is a component of this tier which can identify students who are behaviorally at-risk (Sandomierski, Kincade, & Algozzine, 2007). The Technical Assistance Center on Positive Behavior Supports (2006) contends behavioral screening tools should be efficient, practical, and easy to manage. They also support the commonly used screening tool, Systematic Screening for Behavior Disorders, to assess behaviors usually associated with EBD. This tool assesses student behaviors such as lying, cheating, sneakiness, stealing, negative attitudes, and behavior problems resulting in ODRs, low achievement, and peer rejections. Schools would use the data to identify and rank students for targeted interventions. Additionally, progress monitoring using ODR, grade

point averages, behavior incidents, and suspensions provide additional data for further student interventions

Secondary prevention, or Tier 2, provides supplemental and targeted interventions focusing on a specific behavior or academic skills for those students who have yet to respond to Tier 1 universal interventions (Sugai, et al, 2007). Students at this level, which generally includes approximately 15% of the student body, receive frequent small group academic or social skill instruction carried out with fidelity outside of the regular classroom instruction (Center for PBS, 2004; MiBLSi, 2010). Schools would progress monitor identified students using ODRs, suspensions, and classroom removals to identify chronic or serious behavior problems (Tobin & Sugai, 2005). Examples of interventions, or behavioral education plans, may include daily positive adult contact multiple times a day, behavioral daily report cards, and check in/checkout forms which provide the student with frequent opportunities of feedback (MiBLSi, 2004). Additionally, Tobin & Sugai (2005) contend that frequent engagement between staff and students can lessen problem behaviors and improve academic achievement.

Tier 3, which generally supports 5% of the student body, provides individualized intensive interventions to students who continually experience significant difficulties or chronic behavior problems (Sugai et.al, 2007; Sugai & Horner, 2006). The goal of this tier is to focus on reducing the intensity or complexity of cases resistant to Tier 1 and Tier 2 intervention. Interventions may take place in alternate settings as highly trained staffs are necessary for this continuum of support (Sugai et al., 1999). Furthermore, tertiary systems are more successful when schools collaborate with parents, staff, and community services in the creation of an intensive individualized plan within a school-wide PBS framework (Sugai et al., 1999).

Individualize supports for Tier 3 includes a functional behavioral assessment (FBA). It is a collection of student data used to develop a measurable hypothesis for which teachers can test to identify the environment of conditions for which the behavior is likely to occur (Sugai et al, 2007). Information obtained from parents, teachers, student interviews and records, and student observations in various school settings, lead to the identification of a student's underlying behavior. Schools will enact planning treatments, or behavior replacement interventions, to assist a student to behave in an alternative way. It is important to note IDEA (2004) requires schools to develop intervention plans when a student's behavior interferes with their learning or the learning of others.

Lassen, Steele, & Sailor (2006), research study adds to the growing body of research on SWPBS models for linking the reduction of behavior problems to academic achievements in a three year longitudinal project at a Midwest urban student middle school. The student participants comprised 623 students, with 26% identified as African American, 40% Hispanic, 30% Caucasian, and 4% Asian Pacific Islanders. Of these students, 54% were male and 80% were economically disadvantaged. The school's documentation in the first year of the SWPBS project included (a) behavioral expectation and reward program for appropriate behavior; (b) a three tier support system for behavioral interventions; (c) professional development training for evidence-based practices and team decision making; and (d) ongoing administrative support.

Year two of the program included additional professional development of PBS interventions across all tiers. During the final year of the project, the school offered weekly group-level support and interventions for students who were identified as having continual behavior problems. The results of the study, using ODRs and suspension data as primary indicators for student behavior problems, determined statistically significant reductions in ODRs

and suspensions in the three year study. During the baseline year, there was an average of .32% suspensions per student and decreased each year to year three average of .2% suspensions per student. In ODR they decreased from 5.2 % referrals per student to year three of 3.7% ODR per student. Moreover, the researchers noted a significant correlation between academic performance on standardized reading and math results and ODRs and suspensions.

MiBLSi's continuum of student supports in a three tier system parallels many commonly found elements of a PBS system. The focus of (a) effective instruction, (b) using student data for Tier 2 and Tier 3 decision making, (c) progress monitoring using DIBELS, ODR/suspensions and (d) evidence-based practices and interventions by means of daily behavior systems provide the foundation for student support. Moreover, creating building leadership teams, grade level teams, and student assistance teams is a vital component for successful student outcomes (MiBLSi, 2008a).

Team-Based Approach

The next tenet of Horner (2003) is the belief of a team-based approach for sustaining implementation, maximizing outcomes, and expanding visibility. Building level leadership teams, generally comprised of administrators and general and SE teachers, allows schools to increase efficiency and capacity of the SWPBS system (Sugai & Horner, 2006; Center on Positive Behavior Supports, 2004). Coordination of policies, coaching, training, and monitoring of implementation process are crucial responsibilities for sustaining implantation (Sugai & Horner, 2006).

One component of MiBLSi (2009) is the state-wide team structure of support afforded to all schools. Building leadership teams play a fundamental role as they are responsible for managing the plethora of management tools to comply with MiBLSi data requirements.

Moreover, the team must develop a process to coordinate and summarize student data to strengthen school-wide behavior and reading supports. For example, a school leadership team must create an account with DIBELS data system and train staff on the various measures of this system. In addition, MiBLSi schools must also have a designated district leadership team which provides leadership (e.g. training, coaching, evaluation of policies, and resources) and coordination between MiBLSi and local committed schools. Local educational agencies and regional technical assistance teams provide guidance, visibility, and coaching for district teams. Finally, state MiBLSi leadership teams provide leadership, guidance, funding, and the necessary political support for MiBLSi (MiBLSi, 2009). Sugai and Horner (2006), argue the importance of regional and state level leadership teams as individual schools have difficulty sustaining SWPBS initiatives.

Committed Leadership and Staff

The final tenet behind Horner (2003) is the commitment from administrative and staff. According to Sprague and Horner (in press), principals have a measureable impact on school achievement and effectiveness. They note the positive correlation between principals who initiate and maintain programs and successful school initiatives. Moreover, staffs who are allowed to “vote” on the commitment to participate on any school initiative can move others toward implementation. Dufour and Berkley (1995) also note the importance of school leaders. They argue principals who create consensus are likely to move schools in a focused direction. Conversely, principals who force initiatives onto their staff may create resistance.

The current prerequisite for MiBLSi implementation is a three year commitment (MiBLSi, 2009). During the application process, 80% of school staff, including district and building administration, must endorse MiBLSi implementation for a period of at least three

years. Additionally, the staff must also commit to a regimented training sequence for building capacity and sustainability. In year one of the training sequence, schools establish data systems and conduct multiple audits on school climate, reading and behavioral supports. MiBLSi coaches also train teachers utilizing varying building and classroom management strategies for improving student behavior. In year two of the training sequence, schools begin to develop targeted reading and behavior interventions and are trained to interpret and create action plans based on student data. MiBLSi also assist schools in revising building action plans and reviewing student outcomes. In the final year of the training sequence, schools conduct fall, winter and spring reviews of reading, behavior and data efforts. In addition, schools receive ongoing professional development to embed research –based practices within each school. Interestingly, and unlike MiBLSi schools, the MDE (2006) does not require schools to have specific reading or behavioral goals for school improvement efforts. Schools are only required to have one goal for each core content area (i.e., math, English-language Arts, science, and social studies).

Conceptual Model

The focus of this study is the examination of the state-sponsored MiBLSi framework effectiveness by measuring LD identification rates of schools within the program. The MiBLSi framework affords students who are academically and behaviorally at-risk, the opportunities for a learning environment which supports student achievement. The essential elements, which are outlined in Figure 5, provide the structure and support necessary to support staff with the practices that promote success.

The first essential element to improve student achievement and social skills is a committed administration and staff. As schools begin the MiBLSi project, schools must have active building, district, and intermediate school district leadership teams for building capacity

and sustainability in the school improvement process. Sprague and Horner (in press) contend principals who begin and maintain programs are successful in school initiatives. Second, adding PBS to the MiBLSi framework addresses the IDEA (2004) requirement of considering positive behavioral interventions to students with behavior problems. Pavlov, Thorndike, and Skinner suggested learning results from environmental influences. Furthermore, Skinner's (1953) guiding principles behind behavioral learning theory support the notion that teachers may increase student achievement if they utilize sound behavioral practices. Steele (2005) also suggests teachers utilize behaviorally-oriented approaches such as breaking lessons into smaller parts, predictable sequences of lessons, and the use of positive frequent feedback. She argues these approaches are critical to students with LDs success in learning. Moreover, the increasing trend of exclusionary practices for students with disabilities reveals the necessity of adding behavioral supports to these students will increase the likelihood of improving student achievement (Zhang et al., 2004).

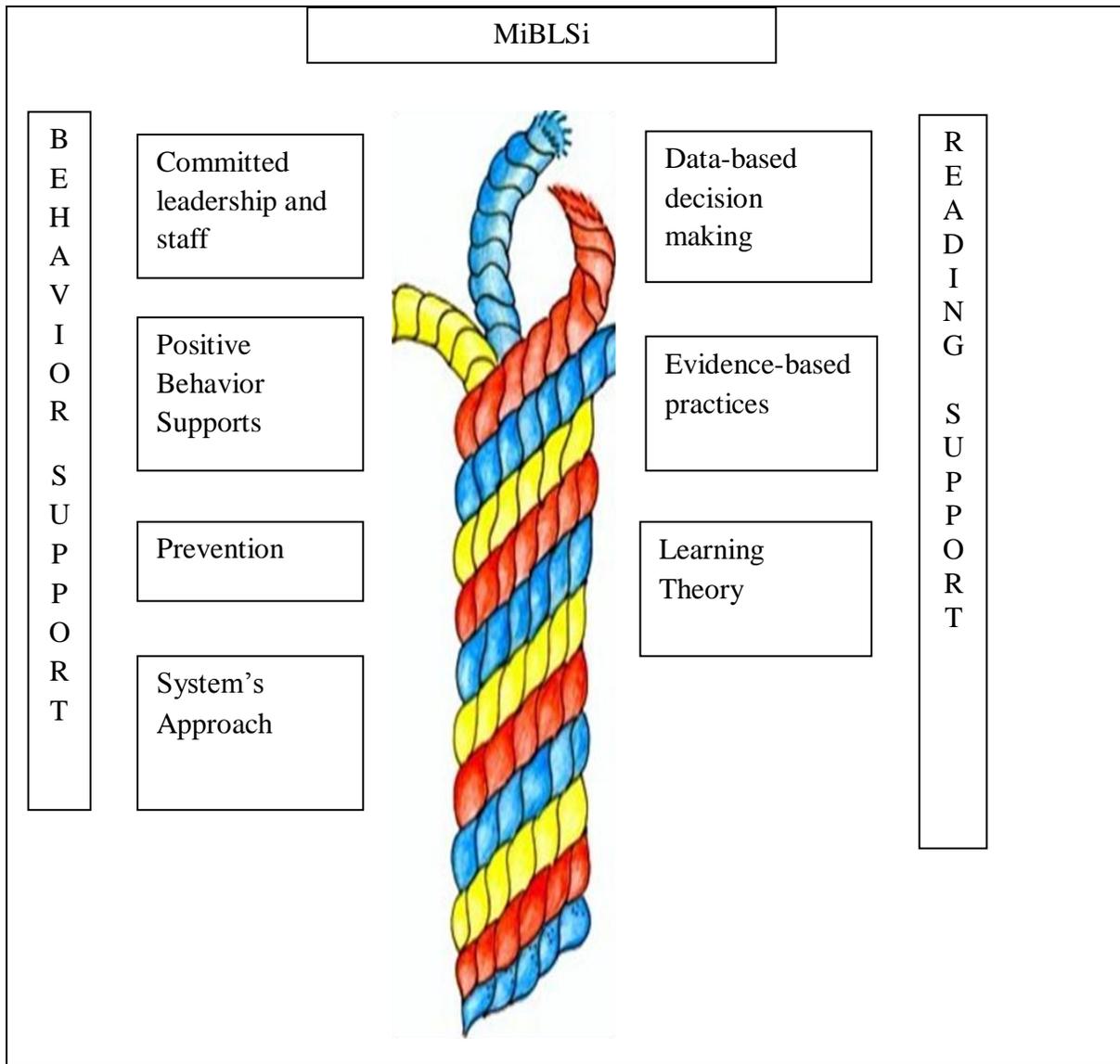


Figure 5. MiBLSi (2009)

The third element to improve student achievement and social skills is the notion of prevention. Horner (2003) argues a school-wide PBS is a proactive approach to deter problem behavior by creating a positive school environment. Horner (2003) contend schools that provide universal, secondary, and tertiary interventions and support in reading and behavior help promote school achievement and social development. Behaviorists also assert that teachers should create

positive outcomes with the use of reinforcers to ensure learning. MiBLSi's prevention program which utilizes the PBS approach teaches appropriate behavior and social skills, monitors and encourages behaviors with reinforcers, and corrects inappropriate behavior. Skinner (1953) provided ample direction and suggestions to reinforce a desired behavior.

The next essential elements to improve student achievement and improve social skills are the system's approach and evidence based practices. Horner (2003) contends, a systems approach is necessary to build, support, and sustain practices. MiBLSi (2009) emphasizes evidence-based practices that are tied to school improvement efforts. For example, the required use of the System-Wide Evaluation Tool (SET) allows schools to monitor and evaluate the MiBLSi systems.

The final essential element is the practice of data-based decision making. Sugai and Horner (2006) note the importance of accurate student data to evaluate current practices in literacy and PBS. MiBLSi (2009) requires the use of accurate systems such as SET, DIBELS, and School-Wide Information System (SWIS) to measure student discipline referrals and behavior incidents.

Research Conceptual Model

The conceptual model of improving student achievement, thus reducing SE LD rates (see Figure 6) was created to depict the theoretical frame from which this dissertation was framed. The focus of this study is the examination of the state-sponsored MiBLSi framework effectiveness by measuring LD identification rates of schools within the program. In addition, the model portrays the importance of federal mandates of NCLB (2001) and IDEA (2004) as well as the principles associated with RtI and MiBLSi. Supports provided by MiBLSi also afford schools many opportunities to network regarding problem behavior, improve student

achievement, and reduce LD rates. Finally, the model portrays the stages of increasing the learning capacities of students through understanding the theory behind learning.

Figure 6 outlines the process in which schools should take into account to improve student achievement. The hierarchy depicted suggests the federal legislation of NCLB (2001) and IDEA (2004) are the cornerstones to improving student achievement and reducing SE rates. Both mandates brought improvements of how to identify and educate students with disabilities. NCLB (2001) created guidelines for improving academic standards stressing the importance of sound and proven educational practices. Moreover, by penalizing schools that do not meet academic standards, NCLB (2001) held schools financially accountable for student learning. IDEA (2004) created an alternative operational definition of LD by allowing methods to monitor students' responsiveness to instruction. As an attempt to address the rising number of student receiving SE services, IDEA (2004) allows schools to discontinue the I.Q. achievement discrepancy model as the sole means to identify students with LD.

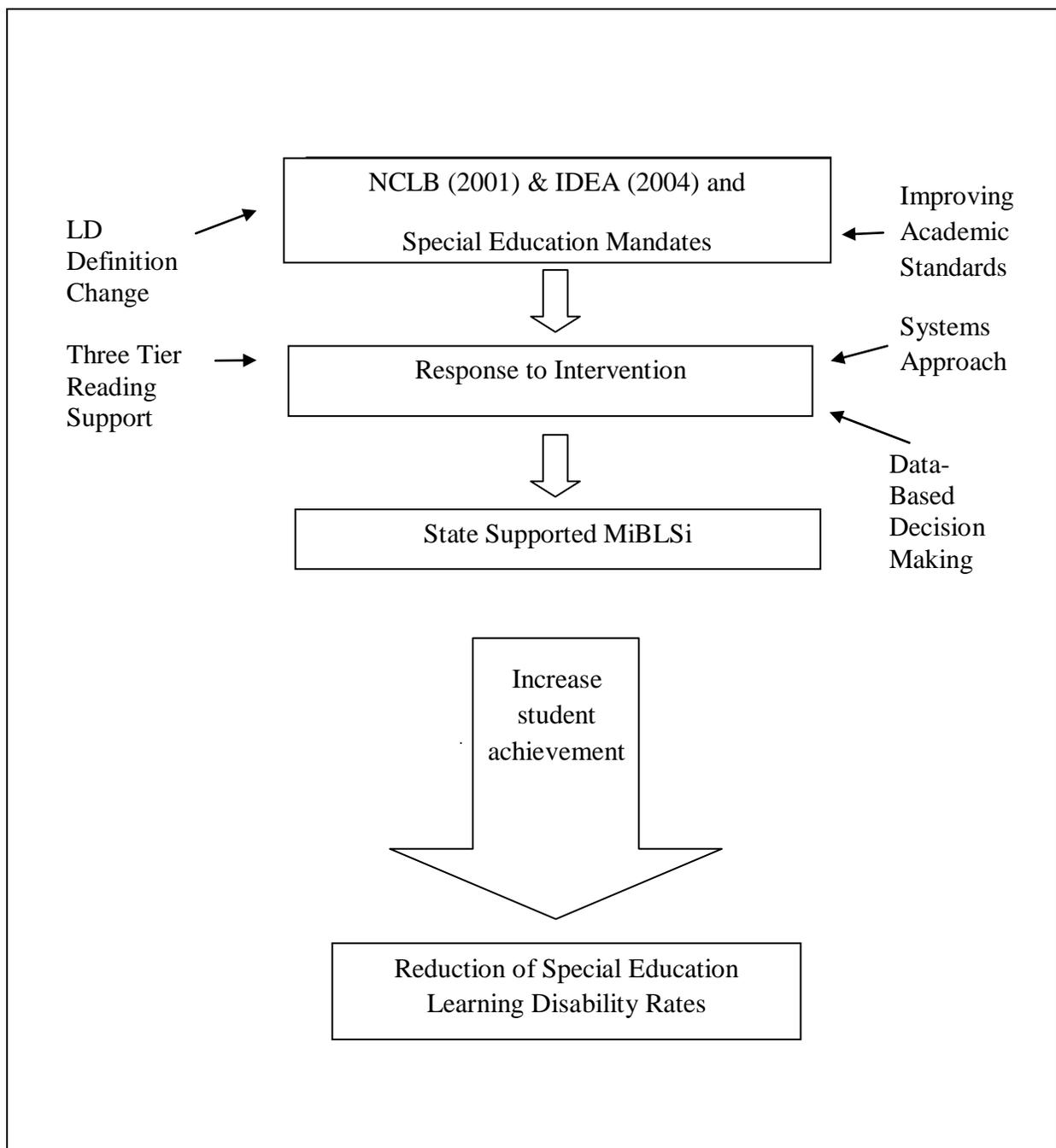


Figure 6. Conceptual Model of Improving Student Achievement

The next step in the hierarchy is RtI. It is the intentional delivery of sound educational practices that promotes opportunities for struggling student to learn including those with disabilities. The intent of RtI, which was articulated in IDEA (2004), is to replace the I.Q.-achievement discrepancy model and promote the use of scientifically-sound methods and the frequent monitoring of student learning to accurately diagnose learning problems. Many

researchers in the educational field view RtI as a promising approach to improve learning.

Gresham (2001) explained,

“The most serious flaw in the current process is the absence of a direct link between assessment procedures used for identification and subsequent interventions that might be prescribed on the basis of these assessment procedures. What appears to be needed is an approach to defining LD that is based on how students respond to instructional interventions rather than on some arbitrarily defined discrepancy between ability and achievement”(p.3).

Within the RtI framework, there are key practices that promote increased student achievement by providing struggling students opportunities for learning. First, Horner (2003) asserts a unified system is paramount to the success of an organization. He also asserts a cohesive system approach in schools is more likely to support best practices which are also a requirement of NCLB (2001). NASDSE (2006) also gives guidance in servicing students with LDs within a unified system by providing a problem solving model, eliminating separate classrooms for students with LDs, and utilizing the general education classroom in preventing learning problems and behavioral issues for the vast majority of students. Next, providing students with multiple levels of reading and behavior support may reduce LD rates. The three-tier system includes universal interventions, targeted interventions, and individual interventions that help remediate academic difficulties. Finally, data-based decision making promotes increased student achievement as recording academic improvement allows educators to frequently monitor student progress (Horner, 2003). CBMs are widely used to track student’s growth over time and answers questions regarding the effectiveness of programs and

interventions. (Deno, et al., 2001; Fuchs & Stechler, 2001). Additionally, the use of CBM is gaining interest as a monitoring tool for students with LD (Deno, 2003).

The final step in the hierarchy that will lead to the reduction of LD rates is the MDE supported MiBLSi initiative which was established to address federal government's "response to intervention" legislation. The program utilizes the RtI framework and adds key practices for sustainability and improving student achievement and social skills. In addition, IDEA (2004) also required schools develop intervention plans for students whose behavior interfered with learning. For example, functional behavioral assessments, often used with students with behavior problems, help identify environmental conditions that block learning. Moreover, behavioral learning theory suggests the environment has an effect on learning. Scholarly researchers suggest that reducing behavior problems will result in more minutes in academic instruction, thus improving student performance (Bohanon et al., 2008).

The conceptual model of improving student achievement was created with the principles associated with NCLB (2001), IDEA 2004, RtI, and MiBLSi along with the purposes of this study. It was this researcher's intent to provide a framework by placing these constructs in context with this study. Through the analysis of the MiBLSi framework, the effectiveness of MiBLSi was measured.

Summary of Literature Review

The debate on the identification and servicing SE students began in the 1970's with the federal government playing a large role in determining their fate. As court decisions and federal enactments command schools to change their instructional practices for students with LDs by eliminating the I.Q.- discrepancy model and improve student achievement for all students, many researchers in the field believe the RtI framework shows promise in the reduction of SE referrals

(Fuchs et al., 2003). Although the federal government does not have a national RtI model, many states, like Michigan, are creating their own version. MiBLSi, an MDE RtI initiative, affords students who have behavior or academic problems, learning support and base their program on the premise that student behavior plays a significant role in academic achievement. Behaviorists believe learning is guided by behavior and teachers utilize behavioral practices in the classroom (See Merriam & Cafferella, 1998; Hartley, 1998). Consequently, as schools better manage the behaviors of students, the expectation of increasing student achievement may be a result.

Knowing the costs for educating students with LDs is significantly greater than a general education student, it is important to acknowledge school approaches and their systems must be effective in increasing student achievement with the likelihood of reducing LD referral rates. The following chapter will include the research questions, methodology of the study, population, data collection procedures, and data analysis tools that will be used to answer the research questions of this study.

CHAPTER III

METHODOLOGY

Michigan's Integrated Behavior and Learning Support Initiative (MiBLSi) is a state program sponsored by the Michigan Department of Education (MDE) to assist elementary and intermediate schools in developing school-wide reading and behavioral support systems (McGlinchey, Schmallmo, & Goodman, 2008). The growing trend to add reading and behavior supports is gaining in popularity due to the increasing violent acts and behavior problems of students in schools (Gresham, VanDerHeyden & Witt, 2005; Bohanon, Goodman & McIntosh, 2008). As students with learning disabilities are more often removed from the classroom for behavior problems, proponents argue that providing both behavioral and reading supports systems to all students may result in an increase in student achievement as they are more likely to remain in the classroom (See Sailor et al., 2006; Zhang Katsiyannis & Herbst, 2004; Lewis & Sugai, 1999; Bohanon et al., 2008). Moreover, Gresham (2007) suggests an RtI model may reduce the disproportionate identification of males with Individualized Education Plans (IEPs) as this model focuses on student outcomes. As schools are now accountable for improving student achievement, states like Michigan are creating alternative approaches to meet the needs of all students including students with LDs.

MiBLSi's framework utilizes a response to intervention (RtI) model that includes providing reading interventions and positive behavior supports (PBS) to students with academic or behavior problems (MiBLSi, 2008). In addition, to assist schools in their RtI and PBS implementation efforts, MiBLSi provides each school a three-year annual stipend of \$6,700 dollars (MiBLSi, 2008a). Monies may be spent for extensive professional development, consultation support, supplemental materials, and on-line database programs. Since its launch in

2003 with limited pilot schools in Macomb, Ottawa Intermediate School District and Kalamazoo Regional Educational Service Agency, many schools within the state of Michigan are embracing the MDE initiative.

The purpose of this study is to examine the effectiveness of the MiBLSi framework by determining: (a) if there is a reduction of LD identification rates, (b) whether there is a difference in LD identification rates between participating MiBLSi schools and non MiBLSi schools within the state of Michigan, and (c) whether gender impacts LD identification rates. An investigation of this state initiative is prudent due to the current financial shortfall for many school districts in the state of Michigan and the extra costs associated with teaching students with LDs (See Fuchs & Fuchs, 2006; White, 2008).

Given the challenges of teaching students with varying needs, it is hypothesized that concerns regarding the identification of students with LDs will arise (NJCLD, 2005; Dykeman, 2006). As schools maximize resources to students who are most academically and behaviorally at-risk, understanding the causal relationship between learning and behavior is important. Thorndike (1903/2009) addressed this relationship in his theory that animals are more likely to strengthen their behaviors if they associate them with positive outcomes. Skinner (1953) also argues, learning may be a result of reinforcements or punishments.

The federal legislation of NCLB (2001) and IDEA (2004) ushered in significant changes in reading assessments and standards as well as SE identification. Moreover, it has lead to schools examining current literacy instructional practices. As the National Reading Panel (2000) suggested 20% of children in America face severe reading difficulties prior to 3rd grade. Torgesen (2002) argues, delaying interventions may lead to continual reading failure.

Conversely, literacy researchers assert early interventions may combat the growing number of students identified as LD (Coyne et al., 2004).

Null Hypotheses

This study will utilize the following null hypotheses

1. There will be no significant difference in before and after comparison in the reduction of students identified as LD in MiBLSi schools.
2. There will be no significant difference in LD identification of males in MiBLSi schools.
3. There will be no significant difference in LD identification of males in MiBLSi and non-MiBLSi schools.
4. There will be no significant difference in LD identification of females in MiBLSi schools.
5. There will be no significant difference in LD identification of females in MiBLSi and non-MiBLSi schools.
6. There will be no significant difference in LD identification rates in MiBLSi schools and non-MiBLSi schools.

Research Design

In order to examine the effectiveness of MiBLSi, a quantitative study was selected. Creswell (2008) defines a quantitative study as “a means for testing objective theories by examining the relationships among variables” (p. 4) as compared to qualitative study in which a researcher examines participants’ perspectives on given experiences. Muijs (2004) defined quantitative research methods as “explaining phenomena by collecting numerical data that are analyzed using mathematically based methods” (p.1) and is a way to prove or disprove

hypotheses (Newman & Benz, 1998). Smith (1983) further affirmed quantitative research is a “journey of the facts” (p. 10). Overall, this research design affords an opportunity to uncover relationships and patterns that are expressed in numbers (Rudestam & Newton, 2001).

To address the first, second, and fourth null hypotheses one group pretest-posttest design will be utilized. Creswell (2003) stated pre-experimental designs allow the researcher to study a single group, provide an intervention, and test the impact of the treatment. As required by the Individual with Disabilities Act (IDEA) of 2004, the MDE requires schools which have SE services submit annual SE count by December 1st of the current school year via the internet using Michigan Compliance Information Systems (MI-CIS) (Michigan Department of Education, 2009). Once completed and verified by the MDE, districts receive compilation of SE rates per each building. This study will use IDEA (2004) December 1st SE counts to examine if: (a) MiBLSi schools were able to significantly reduce their LD identification rates, (b) there was a reduction of males identified as LD, and (c) there was a reduction of females identified as LD.

For the third, fifth, and sixth research questions in this study, a pretest-post test control group design will be utilized. According to Creswell, (2002) this experimental design involves two assigned groups of participants which are administered pretests and posttests. Group A, however, only receives a treatment. The control and treatment group for this study were selected rather than random assignment. In this study, both the control group, (i.e., non-MiBLSi schools) and treatment group (i.e., MiBLSi schools) submit annual SE referral data to the MDE for the IDEA (2004) SE count. Furthermore, this research design may suggest a cause and effect relationship between the variables. The study will compare the state of Michigan LD average to the identification rate of (a) MiBLSi schools, (b) males, and (c) females.

Research Paradigm

The positivist paradigm, which guides quantitative methodologies, is based on the assumption that there is an objective reality that can be measured (Creswell, 2003). It affords this researcher the discovery of “what truly happens in organizations” by categorizing and scientifically measuring the behavior of a system (Hatch, 2002, p. 13). Hatch (2002) also asserts, good knowledge and theories are generated from data which are based on hypotheses. Moreover, she argues this paradigm lacks “inherent bias” as it values truth, validity, and reason.

The quantitative approach was chosen for three reasons.

1. The focus of the study was to determine if MiBLSi schools have impacted SE rates.
2. To examine MiBLSi’s impact, a theory was constructed which necessitates the collection of data or evidence to test the theory.
3. The goal for this researcher is to discover the patterns or relationships and make logical inferences from the data collected (Rudestam & Newton, 2001).

The goal for this investigation is rooted in inquiry as this researcher is attempting to develop knowledge using scientific measures and will enable this researcher to confirm or verify the hypotheses (See Hatch, 2002; Gavin, 2008). Creswell (2003) also asserts that “a quantitative approach is one in which the investigator primarily uses positivists claims for developing knowledge...employs strategies of inquiry such as experiments...and collects data on predetermined instruments that yield statistical data” (p. 18). This researcher will validate the knowledge by matching knowledge claims (i.e., assumptions) with “phenomena in the real world” (Rudestam & Newton, 2001, p. 47).

The ontological assumption underlying this study is that reality is objective. Unlike qualitative research where multiple realities are created through human construction, the

quantitative approach assumes that reality exists beyond those who live it (Hatch, 2002). This reality is determined by causes, not by beliefs or perceptions (Hatch, 2002). This particular study is designed using measures and scientific methods, thus the readers of this study seek to obtain knowledge.

Population and Sample

MiBLSi is a state MDE initiative in its 7th year of operation. It receives funding through MDE to assist schools in developing literacy and behavior supports for all students. Once schools receive acceptance into the project, a three year commitment is required. Initially implemented as a small scale pilot project, over 300 Michigan schools are currently involved in the project. Due to geographical convenience and a personal interest in SE, this state was selected for this research.

Since its inception of the pilot program in 2003, MiBLSi places accepted schools in yearly cohorts (i.e., Cohort 1, Cohort 2, etc.) to monitor the high level of implementation and staff involvement in a school-wide PBS model. Cohort 3, 2006-2007 school year, was selected for this study for the following reasons:

1. In 2003, the pilot cohort was hand selected by MiBLSi under the direction of MDE Office of Special Education and Early Intervention Services. They were funded by the MDE and the federal government to create a state model integrating PBS and RtI (Erwin, Schaughen, Goodwin, McGinchey & Matthews, 2007). This pilot cohort was not selected as they were specially selected for this project.
2. MiBLSi requires schools to commit to a three year regimented training sequence for building capacity and sustainability. Therefore, in order for MiBLSi to build capacity and continuous improvement for its own initiative, three groups (i.e. pilot school,

- Cohort 1 and Cohort 2) must elapse in order to conduct a review and evaluation of its program. Therefore, Cohort 1, school year 2004-2005, was not selected for this study as MiBLSi was in its second year of its program. Cohort 2, school year 2005-2006, was also not selected for this study as MiBLSi was in its third year of its program.
3. To assist schools in the early phases of MiBLSi, the pilot cohort, Cohort 1 and Cohort 2 were also aided in \$720,000 in federal funds and state ‘seed money’ that were used to “support training and technical assistance, provide resources for information systems, and provide mechanisms for planning and problem solving meeting in participating schools” (Erwin, Schaughen, Goodwin, McGinchey & Matthews, 2007, p. 360). Federal funding ended for this state project in December 2005, and future cohorts did not receive federal monies.
 4. Due to the pilot cohort, Cohort 1 and Cohort 2 were early adopters and were unique to this state initiative. Cohort 3 was selected as it was the first cohort after the initial training sequence.

This study was limited to Cohort 3 (N=45) in 2006-2007 school year through 2008-2009 school year. Schools were determined through the acceptance and qualifications set forth by MiBLSi. According to MiBLSi (2008a), schools must: (a) have 80% of the staff must commit to the MDE program for a minimum of three years; (b) give reading and behavioral goals priority in school improvement plans; and (c) establish building leadership teams including a local district MiBLSi coach. In addition, schools are required to implement systems for multi-tiered reading interventions, school wide positive behavioral supports, and a team-based approach which utilizes student reading and behavioral data for decision making (MiBLSi, 2004a).

The target population for the first, second, and fourth null hypotheses were Cohort 3 MiBLSi schools in the state of Michigan. The sample participants selected were from the MiBLSi directory available through the MDE Office of Special Education & Early Intervention Services. These schools were selected as they met the minimum three-year project commitment. Moreover, these schools were selected to determine the effects of the MDE project and LD identification rates of MiBLSi schools, males, and females.

The target population for the third, fifth, and sixth null hypotheses were all Michigan public schools who serviced SE students from 2006-2007 school year through 2009-2010 school year. The participants are all public school listed on the Michigan Compliance Information System (Mi-CIS) website (MDE, 2011). These schools were selected to compare the state of Michigan LD identification rate average to (a) MiBLSi schools, (b) males, and (c) females.

Instrumentation

In order to answer the first, second, and fourth null hypotheses, the MDE December 1st, IDEA student counts from year 2006 and 2009 were utilized. MDE requires districts which serve SE students to electronically submit counts of students currently enrolled in SE using the Michigan Department of Education Center for Educational Performance and Information (CEPI). Moreover, this form is required by the state of Michigan to receive federal SE funding (Michigan Department of Education, 2009). The December 1st count includes all students who have an Individual Education Program on or before December 1st of the current school year. The IDEA student count data includes fifty student data elements. Of importance to this research study, the collection form identifies students by (a) school, (b) gender, (c) grade, and (d) program eligibility. Interestingly, free and reduced lunch eligibility is not included in the collection form.

To answer the third, fifth, and sixth null hypotheses, the December 1st 2009 IDEA student count data collected by the MDE Office of Special Education & Early Intervention Services were used to determine how MiBLSi schools LD identification rate of Cohort 3, males, and females compared to the state of Michigan average. As mentioned above, this data is completed annually on or before December 1st of the current school year and is a requirement of schools which have SE students. The student enrollment data is available through the Michigan Department of Education Compliance Information System (Mi-CIS) website

Data Collection and Variables

Upon approval of Central Michigan University's Institutional Review Board, an email was sent to the MDE Office of Special Education and Early Intervention Services requesting permission to obtain MiBLSi Cohort 3 Schools Learning Disability identification numbers by gender for 2006-2007 school year and 2009-2010 school year (See Appendices A). In addition, permission was sought from the MDE Office of Special Education and Early Intervention Services to obtain December 1st IDEA student count data of all Michigan public schools in 2006-2007 through 2009-2010.

In the first, second, and fourth null hypotheses, a pre-experimental, one group pretest-posttest design was utilized. Thus, the experimental group, Cohort 3, received treatment for this study. The pretest for this group is the dependent variable represented by the LD rate in MiBLSi schools prior to receiving implementation support. This data was obtained in the December 1st IDEA student data count in 2006. The experimental treatment, or independent variable, consisted of MiBLSi's three-year implementation framework for school years 2006-2007 to 2008-2009. The posttest was MiBLSi's LD rate after the three year implementation support on the December 1st 2009 IDEA student count.

In order to answer the third, fifth, and sixth null hypotheses, a pretest-post test control group design was utilized. This experimental design involves two assigned groups of participants which are administered pretests and posttests. Group A, however, only receives the experimental treatment. MiBLSi Cohort 3 represents the experimental treatment group as they received MiBLSi implementation support from school years 2006-2007 to 2008-2009. Non-MiBLSi 2006-2007 to 200-2009 schools represent the control group as they did not receive MiBLSi implementation support. In this study, both the control group, (i.e., non-MiBLSi schools) and treatment group (i.e., MiBLSi schools) submit annual special education referral data using December 1st IDEA student count.

Data Analysis and Procedures

The preliminary data was collected, analyzed and summarized using Microsoft Excel. The results were stored on a home personal computer and were carefully guarded. As the data is collected, schools were given personalized code to ensure confidentiality. Data was analyzed using SPSS Statistical Software. Data was evaluated using descriptive statistics, including mean and standard deviation, frequencies, and percentages, providing an analysis for each null hypothesis.

To answer the first, second, and fourth null hypotheses, a t-test was used to determine pretest and posttest differences. An alpha level of 0.5 was used as the criterion for determining the statistical significance of the findings. A t-test is a statistical test used when comparing the means of different groups (Fraenkel and Wallen, 2006). According the Fraenkel and Wallen (2006), this type of statistical procedure is useful for comparing means of the same group before and after a treatment. For this study, the treatment is MiBLSi and it will be determined if there is a statistically significant difference in LD identification rates after the treatment of MiBLSi.

A t-test reduces the likelihood of type 1 error. Type 1 errors are defined by rejecting the null hypothesis and assuming incorrectly the results are due to the treatment (Fraenkel and Wallen, 2006). In addition, the sample of the study included 45 schools receiving the MiBLSi treatment. The non-treatment group includes the remaining public schools in the state of Michigan. This is a large sample reducing the chance for type 1 error.

To answer the third, fifth, and sixth null hypotheses, a z-test and t-test were performed. A z-test is used to determine if there is a significant difference between the means of two non-random groups (Creswell, 2003). Z-tests are used when the mean and standard deviation of the two groups is known. In this case comparing the means of the LD identification of MiBLSi schools including males and females versus non-MiBLSi (i.e. the state of Michigan) public schools were compared.

In addition, a t-test was performed to determine if MiBLSi schools LD rate change was significantly different from non-MiBLSi schools. The t-test was used to determine if there was a significant LD identification rate change from MiBLSi to non-MiBLSi schools over the three year period. An alpha level of 0.5 will be used as the criterion for determining the statistical significance of the findings. The source of the data is the December 1st SE student count. By choosing a z-test, the researcher determines statistical significance, and thus increases the power of the research.

Problems in Data Collection

The MDE Office of Special Education and Early Intervention Services was contacted by telephone and e-mail. MDE sent the MiBLSi LD data using a password protected excel spreadsheet. The data was sorted by school building according to gender. In addition, to gain

student enrollment data by building and by gender, the Michigan Department of Education Michigan Compliance Information System (Mi-CIS) website was used to secure enrollment data.

Threats to Validity

Threats to validity may affect the outcome to this study. Creswell (2003) defines internal validity threats as “experimental procedures, treatments, or experiences ... that threaten the researcher’s ability to draw correct inferences from the data in the experiment” (p. 171). In this study, instrumentation is an internal threat to the post-test outcomes of this study. Due to the lack of national standards for LD certification within an RtI framework, schools are making their own criteria for this determination (Dykeman, 2006; Fuchs & Fuchs, 2006). Fuchs & Fuchs (2006) note the financial ramifications for placing students in SE as the cost are substantially greater. Therefore, MiBLSi schools may not place students in SE programs due to the current limited financial resources in the state of Michigan.

Creswell (2003) also notes external threats to validity may also occur in quantitative studies. He articulated that external threats occur as “experimenters draw incorrect inferences from the data sample to other groups, other settings, and past or future situations” (p. 171). Ecological validity, or the ability to generalize the findings across settings (Rudestam & Newton, 2001) may threaten this study as it is limited to Cohort 3.

Ethics of Methodologies and Data Collection

This researcher has been a school principal for the last five years as well as worked as a special education supervisor for eight years in the same school district. Although this researcher is associated with a recently approved MiBLSi school, there was no affiliation with the cohort selected for this study. Additionally, this researcher has not visited or associated with any

participants of this study. Nor does this researcher have any personal relationships with the cohort. All data collected from this study was collected for a legitimate research purpose and with integrity and honesty.

CHAPTER IV

RESULTS OF STATISTICAL ANALYSIS

The purpose of this study was to investigate the effectiveness of the Michigan's Integrated Behavior and Learning Support Initiative (MiBLSi) framework by determining: (a) if there was a reduction of learning disability (LD) identification rates, (b) whether there was a difference in LD identification rates between participating MiBLSi schools and non MiBLSi schools within the state of Michigan, and (c) whether gender impacts LD identification rates. An investigation of this state initiative is prudent due to the current financial shortfall for many school districts in the state of Michigan and the extra costs associated with teaching students with LDs (See Fuchs & Fuchs, 2006; White, 2008).

Null Hypotheses

This study utilized the following six null hypotheses:

1. There will be no significant difference in before and after comparison in the reduction of students identified as LD in MiBLSi schools.
2. There will be no significant difference in LD identification of males in MiBLSi schools.
3. There will be no significant difference in LD identification of males in MiBLSi and non-MiBLSi schools.
4. There will be no significant difference in LD identification of females in MiBLSi schools.
5. There will be no significant difference in LD identification of females in MiBLSi and non-MiBLSi schools.
6. There will be no significant difference in LD identification rates in MiBLSi schools and non-MiBLSi schools.

The null hypotheses from this study were answered using statistical analysis. The data analysis was divided into six sections. Null hypotheses one, two, and four utilized a t-test to determine pretest and posttest differences. An alpha level of 0.5 was used as the criterion for determining the statistical significance of the findings. Specifically, a t-test using Cohen's d to determine effect size was performed. A t-test is a statistical test used when comparing the means of different groups (Fraenkel and Wallen, 2006). According to Fraenkel and Wallen (2006), this type of statistical procedure is useful for comparing means of the same group before and after a treatment.

Null hypotheses three, five, and six employed a z-test and t-test to determine mean differences. A z-test is used to determine if there is a significant difference between the means of two non-random groups (Creswell, 2003). Z-tests are used when the mean and standard deviation of the two groups is known. In this case the researcher compared the means of the LD identification of MiBLSi schools including males and females versus non-MiBLSi (i.e. the state of Michigan) public schools.

In addition, a t-test was performed to determine if MiBLSi schools LD rate change was significantly different from non-MiBLSi schools. A t-test was utilized to determine if over the three year implantation period MiBLSi schools reduced their LD rate significantly more than non-MiBLSi schools. The t-test was used to determine if the LD rate change was significantly different from MiBLSi to non-MiBLSi schools over the three year period. An alpha level of 0.5 was the criterion for determining the statistical significance of the findings.

Data Collection

Data was obtained from the Michigan Department of Education (MDE) Office of Special Education and Early Intervention Services and Michigan Compliance Information System (MI-

CIS). MDE provided data from December 1st IDEA special education student counts for MiBLSi Cohort 3 schools from year 2006 and 2009. MDE also provided by gender students identified as LD for MiBLSi Cohort 3 schools based upon December 1st counts for years 2006 and 2009. In addition, student enrollment information for both MiBLSi Cohort 3 schools and state of Michigan was obtained from the MI-CIS website. The fall enrollment data was obtained both for MiBLSi Cohort 3 schools and all public schools in the state of Michigan.

Description of Cohort 3

MiBLSi is a state MDE initiative in its 7th year of operation. It receives funding through MDE to assist schools in developing literacy and behavior supports for all students. Once schools receive acceptance into the project, a three year commitment is required. Initially implemented as a small scale pilot project, over 300 Michigan schools are currently involved in the project. Due to geographical convenience and a personal interest in SE, this state was selected for this research.

Since its inception of the pilot program in 2003, MiBLSi places accepted schools in yearly cohorts (i.e., Cohort 1, Cohort 2, etc.) to monitor the high level of implementation and staff involvement in a school-wide PBS model. Cohort 3, 2006-2007 school year, was selected for this study for the following reasons:

1. In 2003, the pilot cohort was hand selected by MiBLSi under the direction of MDE Office of Special Education and Early Intervention Services. They were funded by the MDE and the federal government to create a state model integrating PBS and RtI (Erwin, Schaughen, Goodwin, McGinchey & Matthews, 2007). This pilot cohort was not selected as they were specially selected for this project.

2. MiBLSi requires schools to commit to a three year regimented training sequence for building capacity and sustainability. Therefore, in order for MiBLSi to build capacity and continuous improvement for its own initiative, three groups (i.e. pilot school, Cohort 1 and Cohort 2) must elapse in order to conduct a review and evaluation of its program. Therefore, Cohort 1, 2004-2005 school year, was not selected for this study as MiBLSi was in its second year of its program. Cohort 2, 2005-2006 school year, was also not selected for this study as MiBLSi was in its third year of its program.
3. To assist schools in the early phases of MiBLSi, the pilot cohort, Cohort 1 and Cohort 2 were also aided in \$720,000 in federal funds and state ‘seed money’ that were used to “support training and technical assistance, provide resources for information systems, and provide mechanisms for planning and problem solving meeting in participating schools” (Erwin, Schaughen, Goodwin, McGinchey & Matthews, 2007, p. 360). Federal funding ended for this state project in December 2005, and future cohorts did not receive federal monies.
4. Due to the pilot cohort, Cohort 1 and Cohort 2 were early adopters and were unique to this state initiative. Cohort 3 was selected as it was the first cohort after the initial training sequence.

Data from Cohort 3 MiBLSi schools in 2006-2007 school year through 2009-2010 school year were used in this research study. The study included 45 schools. Of these schools, there were 43 elementary schools, one middle school, and one junior high school that were accepted to Cohort 3 and completed three years of training and support. Data from five additional elementary schools in Cohort 3 were excluded from this study due to incomplete 2009 student data as the schools were either closed or reconfigured to include additional grades.

Enrollment Data and Demographics

Table 1 indicates the total student enrollment of MiBLSi Cohort 3 and the state of Michigan for 2006-2007 school year and 2009-2010 school year. In 2006-2007, MiBLSi Cohort 3 total enrollment was 14,854 and in 2009 enrollment increased to 14,950 with a net increase of 96 students. In 2006-2007, the total public school enrollment including MiBLSi Cohort 3 schools in the state of Michigan was 1,675,234 decreasing in 2009 to 1,591,280 students. The enrollment drop in the state of Michigan may be a reflection of the economic crisis (Steely, 2007).

Table 1. Total Student Enrollment for Michigan

Total Enrollment	2006-2007	2009-2010	+/-
MiBLSi Cohort 3	14,854	14,950	+96
Total Michigan	1,675,234	1,591,280	-83,954

Table 2 shows the descriptive statistics enrollment data by gender for MiBLSi Schools in school years 2006-2007 and 2009-2010. In 2006-2007, MiBLSi Cohort 3 schools enrolled 7,165 females and 7,699 males, and the total enrollment ranged from 37 students to 682. In 2009-2010, MiBLSi Cohort 3 schools enrolled 7,239 females and 7,705 males, the total enrollment ranged from 33 to 702 students. Interestingly, there was a considerable enrollment range. Therefore, the resulting standard deviation was 149.66 in 2006-2007 and 155.22 in 2009-2010. Then mean enrollment was 330.09 in 2006-2007 and increased to 332.22 in 2009-2010.

Table 2. MiBLSi Cohort 3 Descriptive Statistics

<u>Enrollment</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Total</u>	<u>Mean</u>	<u>Std Deviation</u>
Female 2006	12	346	7165	159.22	73.47
Male 2006	25	342	7699	171.09	77.09
Total 2006	37	682	14854	330.09	149.66
Female 2009	13	325	7239	160.87	73.38
Male 2009	20	377	7705	171.22	82.85
<u>Total 2009</u>	<u>33</u>	<u>702</u>	<u>14950</u>	<u>332.22</u>	<u>155.22</u>

N=45 for each group

Table 3 indicates the total enrollment by gender in the state of Michigan for school years 2006-2007 and 2009-2010. Female enrollment decreased from year 2006 to 2009 by 41,687, male enrollment decreased by 42,267, with a total enrollment decrease of 83,957 for both. From 2006-2007 to 2009-2010, overall enrollment decreased from 1,675,234 to 1,591,280 students.

Table 3. Michigan Total Student Enrollment by Gender

<u>Total Enrollment MI</u>	<u>2006-2007</u>	<u>2009-2010</u>	<u>+/-</u>
Female	815,141	773,454	-41,687
Male	860,093	817,826	-42,267
<u>Total</u>	<u>1,675,234</u>	<u>1,591,280</u>	<u>-83,954</u>

Table 4 reflects the numbers of students identified as LD in MiBLSi Cohort 3 schools by gender in 2006-2007 and 2009-2010. In 2006-2007, 644 students were identified as LD compared to 2009-2010, 586 students were identified as LD. In 2009-2010, and after the three year implementation period, the number of students identified as LD decreased 54 male, 4 female, resulting in a total of 58 students.

Table 4. Cohort 3 LD Enrollment by Gender

MiBLSi LD Students	2006-2007	2009-2010	+/-
Male	443	389	-54
Female	201	197	-4
Total	644	586	-58

Table 5 indicates the total number of students, minus MiBLSi Cohort 3 schools, identified as LD in the state of Michigan in 2006-2007 and 2009-2010. In 2006-2007, there were 91,924 LD students and in 2009-2010 there were 81,731 LD students. The number students identified as LD from years 2006-2007 to 2009-2010 decreased by 8,137 for males, 2,056 for females with a total reduction of 10,193 students.

Table 5. Michigan Enrollment LD

Michigan LD students	2006-2007	2009-2010	+/-
Male	60,654	52,517	-8,137
Female	31,270	29,214	-2,056
Total	91,924	81,731	-10,193

Table 6 reflects the percentage of students by gender identified as LD in MiBLSi Cohort 3 schools in 2006-2007 and 2009-2010. Male, female and total percentage of students identified as LD decreased in MiBLSi Cohort 3 schools from 2006-2007 to 2009-2010. Males decreased by .7 percent females, .09 percent, with a total student dropped .43 percent.

Table 6. Cohort 3 LD Percentage by Gender

MiBLSi Cohort 3 LD %	2006-2007	2009-2010	+/-
Male	5.75%	5.05%	-.70%
Female	2.81%	2.72%	-.09%
Total	4.34%	3.91%	-.43%

Table 7 indicates the percentage of students by gender in the state of Michigan, minus MiBLSi cohort 3 schools, identified as LD in 2006-2007 and 2009-2010. The percentage of students identified as LD from year 2006-2007 to 2009-2010 decreased in male, female, and total student population. The largest percentage drop was in the male population with a .64 percent decrease. Female decreased by .06 percent and the total LD population dropped by .35 percent.

Table 7. Michigan LD by Gender

Michigan LD %	2006-2007	2009-2010	+/-
Male	7.12%	6.48%	-.64%
Female	3.87%	3.81%	-.06%
Total	5.53%	5.18%	-.35%

Research Hypotheses

Null hypotheses 1, 2, and 4 were researched and analyzed using a T-test to determine pretest and posttest differences. An alpha level of 0.5 was used as the criterion for determining the statistical significance of the findings. Null hypotheses 3, 5, and 6 were analyzed using a z-test.

Null Hypothesis 1

Is the MiBLSi model an effective RtI framework to reduce LD identification rates? The null hypothesis stated there will be no significant difference in before and after comparison in the reduction of students identified as LD in MiBLSi schools. In order to answer this question a t-test was employed. The results appear in Table 8. The analysis yielded a t score of -.25. At 5 percent level of significance, based on the data, there was no statistical significance in the total percentage of students identified as LD in MiBLSi Cohort 3 between 2006-2007 and 2009-2010.

The overall LD rate was reduced from 4.34 percent to 3.91 percent but was not statistically significant despite the .43 percent drop. Although Cohort 3 total student population remained fairly consistent with a net gain of additional 96 students over the three year study period, the percentage of the LD rates did not drop significantly. Therefore, the null hypothesis cannot be rejected.

Table 8. MiBLSi Cohort 3 LD

	Mean	Std Dev.	Std. Error	95% Confidence		t	Sig.
				Mean	Lower		
2006-2009	-.114	2.961	.457	-1.036	.809	-.250	.804

P value > 0.05

Null Hypothesis 2

Is there a reduction of males identified as LD in MiBLSi Cohort 3 schools? The null hypothesis stated there will be no significant difference in LD identification of males in MiBLSi schools. In order to answer a t-test was utilized and the results appear in Table 9. The result indicated a t score of -.34. At 5 percent level of significance there was no statistical significance between 2006-2007 and 2009-2010 MiBLSi Cohort 3 LD male identification rate. The overall male LD

rate, however, was reduced from 5.75% to 5.05%, but was not statistically significant despite the .70 percent reduction.

MiBLSi Cohort 3 male LD population was reduced by 54 students over the three years of implementation. These findings suggest MiBLSi practices were successful in reducing LD rates; however, the reduction was not statistically significant. The findings are also consistent with null hypothesis number 1 as Cohort 3 was able to reduce the number of males identified as LD, but did not meet the threshold of being statistically significant. Therefore, the null hypothesis cannot be rejected.

Table 9. MiBLSi Cohort 3 Male LD

	Mean	Std Dev.	Std. Error	95% Confidence		t	Sig.
				Mean	Lower		
2006-2009	-.022	4.322	.667	-1.369	1.324	-.034	.973

P value > 0.05

Null Hypothesis 3

How do MiBLSi’s LD identification rates for males compare to the state of Michigan average? The null hypothesis stated there will be no significant difference in LD identification of males in MiBLSi Cohort 3 and non-MiBLSi schools. In order to answer this question a z-test was employed with 2006-2007 and 2009-2010 data. In 2006-2007, there was a significant difference in the percentage of LD male students in MiBLSi Cohort 3 and non-MiBLSi schools. Table 10 reflects the z-test results. The 2006-2007 results yielded a z-score of 4.636 and 100 percent significant. Again in 2009, there was a significant difference in the percentage of LD male students in MiBLSi Cohort 3 and non-MiBLSi schools. The 2009-2010 z-score was 5.056 and 100 percent significant. There was a statistically significant difference between the

percentage of LD males in MiBLSi and non-MiBLSi schools in both in 2006-2007 and 2009-2010. This indicates MiBLSi Cohort 3 schools entered MiBLSi and exited MiBLSi with statistically significantly fewer male LD students than non-MiBLSi schools.

However, based on the result of the t-test, there was not a significant difference in the change in the male LD rate between MiBLSi and non-MiBLSi schools from year 2006 to 2009. Both MiBLSi and non-MiBLSi schools reduced their male LD rate by amount. MiBLSi reduced their male LD rate by .70 percent while the rest of the state reduced their male LD rate by .64 percent. Table 11 reflects the result indicated a t score of -.75 which was not significant at the .05 level. Therefore the null hypothesis cannot be rejected.

Table 10. Male MiBLSi to State

Male: MiBLSi LD Male to State LD 2006-2007 Z Value = 4.636 Confidence level = 100% Sig

Male: MiBLSi LD Male to State LD 2009-2010 Z Value = 5.056 Confidence level = 100% Sig

Table 11. MiBLSi Cohort 3 Male LD/ Male LD State

	Mean	Std Dev.	Std. Error	95% Confidence		t	Sig.
				Mean	Lower		
2006-2009	-.0015	.04301	.00641	-.01142	.01442	-.75	.455

P value > 0.05

Null Hypothesis 4

Is there a reduction of females identified as LD in MiBLSi schools? The null hypothesis stated there will be no significant difference in LD identification of females in MiBLSi schools. In order to answer this question a t-test was used. Table 12 displays the t-test results. The results yielded a t score of -.853. At .05 level of significance, based on the data, there was no statistical

significance difference between the before and after females LD rate in MiBLSi Cohort 3 schools between 2006-2007 and 2009-2010 school years.

The overall female LD rate was reduced from 2.81 to 2.72 percent. Although Cohort 3 total student population remained fairly consistent over the three year study period, the percentage of the female LD rate did not drop significantly. Therefore, the null hypothesis cannot be rejected.

Table 12. MiBLSi Cohort 3 Female LD

	Mean	Std Dev.	Std. Error	95% Confidence		t	Sig.
				Mean	Lower		
2006-2009	-.401	3.047	.470	-1.351	.549	-.853	.399
P value > 0.05							

Null Hypothesis 5

How do MiBLSi LD identification rates for females compare to the state of Michigan average? The null hypothesis stated there will be no significant difference in LD female identification rates in MiBLSi and non-MiBLSi schools. In order to answer this question a z-test was employed. Table 13 indicates the z-test results. In 2006-2007, there was a significant difference in the percentage of LD females in MiBLSi and non-MiBLSi schools. The z-score was 4.606. This indicates in 2006-2007 there were statistically significantly more LD females in non-MiBLSi than MiBLSi cohort 3 schools. Similarly, in 2009-2010 there were statistically significantly more females LD students in non-MiBLSi than MiBLSi Cohort 3 schools. The z-score of 4.795 was 100 percent significant. This indicates MiBLSi Cohort 3 schools entered MiBLSi and ended MiBLSi with statistically significantly less female LD students than non-MiBLSi schools.

However, based on the result of the t-test there was not a significant difference in the change in the female LD rate between MiBLSi and non-MiBLSi schools from year 2006 to 2009. During the three year period, MiBLSi Cohort 3 female LD rate dropped .09 percent while the rest of the state of Michigan was reduced by .06 percent. Both MiBLSi and non-MiBLSi school reduced their female LD rate by a similar amount. Table 14 reflects the result indicated a t score of -.93 which was not significant at the .05 level. Therefore, the null hypothesis cannot be rejected.

Table 13. Female MiBLSi to State

Female: MiBLSi LD to State LD 2006-2007	Z Value = 4.606	Confidence level = 100%	Sig
Female: MiBLSi LD to State LD 2009-2010	Z Value = 4.795	Confidence level = 100%	Sig

Table 14. MiBLSi Cohort 3 Female LD/State Female

	Mean	Std Dev.	Std. Error	95% Confidence		t	Sig.
				Mean	Lower		
2006-2009	-.000342	.03062	.00457	-.01262	.00578	-.93	.356

P value > 0.05

Null Hypothesis 6

How do MiBLSi Cohort 3 schools' LD identification rates compare to the state of Michigan? The null hypothesis stated there will be no significant difference in LD identification rates in MiBLSi schools and non-MiBLSi schools. In order to answer this question a z-test was employed. Table 15 displays the z-test results. In 2006-2007, there was a significant difference between the percentage of LD students in MiBLSi Cohort 3 schools and non-MiBLSi schools. The z score was 6.41 and 100 percent significant. Also in 2009-2010, there was a significant difference between the percentage of LD students in MiBLSi Cohort 3 schools and non-MiBLSi schools. The z score was 6.903 and 100 percent significant. This indicates there were statistically

significantly more LD students in non-MiBLSi than MiBLSi Cohort 3 schools in 2009-2010. This indicates MiBLSi Cohort 3 schools entered MiBLSi and ended MiBLSi with statistically significantly less LD students than non-MiBLSi schools.

However, based on the t-test results there was not a significant difference in the LD change rate between MiBLSi and non-MiBLSi schools from year 2006 to 2009. Over the three year period, MiBLSi Cohort 3 reduced their overall LD rate .43 percent, while the rest of the state of Michigan reduced their overall LD rate .35 percent. Table 16 reflects the result indicated a t score of -.96 which is not significant at the .05 level. Therefore the null hypothesis cannot be rejected.

Table 15. Total MiBLSi to State

MiBLSi LD to State LD 2006-2007 Z Value = 6.410 Confidence level = 100% Sig.

MiBLSi LD to State LD 2009-2010 Z Value = 6.903 Confidence level = 100% Sig.

Table 16. Total MiBLSi Cohort 3/State

	Mean	Std Dev.	Std. Error	95% Confidence		t	Sig.
				Mean	Lower		
2006-2009	-.00001	.02894	.00431	-.0087	.00869	-.96	.340

P value > 0.05

Summary

The purpose of this study was to investigate the effectiveness of the Michigan's Integrated Behavior and Learning Support Initiative (MiBLSi) framework by determining: (a) if there was a reduction of learning disability (LD) identification rates, (b) whether there was a difference in LD identification rates between participating MiBLSi schools and non MiBLSi schools within the state of Michigan, and (c) whether gender impacts LD identification rates.

Six null hypotheses were generated to examine MiBLSi Cohort 3. Null Hypothesis one addressed before and after comparison of LD rate in Cohort 3. Using a t-test, results revealed there was not a significant statistical reduction in LD rates during the three year implementation. Null hypothesis two addressed the males LD rates in Cohort 3. Using a t-test, the findings concluded there was not a significant statistical reduction in male LD rates. Null hypothesis three compared Cohort 3 male LD rates to non-MiBLSi schools. Using a z-test, the findings revealed there was a difference in male LD rates in MiBLSi schools compared to non-MiBLSi schools. However, MiBLSi Cohort 3 and non-MiBLSi schools male LD change rate did not differ significantly. MiBLSi Cohort 3 schools entered and exited MiBLSi with lower male LD rates than non-MiBLSi Michigan schools. Null hypotheses four addressed female LD rates in Cohort 3. Using a t-test, the findings concluded there was not a significant statistical reduction in female LD rates. Null hypothesis five compared Cohort 3 female LD rates to non-MiBLSi schools. Using a z-test, the results revealed there was a difference in female LD rates in MiBLSi schools compared to non-MiBLSi schools both when entering MiBLSi and after three years of implementing MiBLSi. However, MiBLSi and non-MiBLSi schools female LD change rate did not differ significantly. The final null hypothesis addressed the LD rates of MiBLSi schools compared to non-MiBLSi schools. Using a z-test, MiBLSi schools were significantly different than non-MiBLSi schools both in 2006 and 2009. However, MiBLSi and non-MiBLSi schools LD change rate did not differ significantly. Both MiBLSi and non-MiBLSi schools reduced their LD rate at a similar pace.

Findings indicated MiBLSi Cohort 3 failed to statistically significantly reduce LD identification rates for male, female, and total students between years 2006-2007 and 2009-2010. Although, the LD rates were reduced in male, female, and total students, MiBLSi Cohort 3

schools failed to meet the statistically significant threshold. It is recommended to study these schools in coming years and add additional cohorts to determine if they reach the statistically significant threshold. However, statistical analysis did reveal MiBLSi Cohort 3 schools entered and exited MiBLSi with less male, female, and total LD students compared to the state of Michigan. This may indicate MiBLSi Cohort 3 schools were implementing strategies to reduce LD prior to entry into MiBLSi. However, both MiBLSi and non-MiBLSi schools reduced their LD rate at a similar level. Further study of RtI practices within these schools is recommended.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The Michigan Department of Education (MDE) created Michigan Integrated Behavior and Learning Support Initiative (MiBLSi) to address the federal mandates of No Child Left Behind (NCLB) (2001) and the Individual with Disabilities Improvement Act (IDEA, 2004). Both mandates create guidelines for improving student achievement for all students including those with disabilities. NCLB (2001), for example, requires schools use scientifically based instruction for all students and report adequate yearly academic progress (AYP) of students to each state's department of education. In addition, NCLB (2001) requires schools to report the AYP of student achievement data into four student subgroups: (a) students with learning disabilities (LD), (b) socio-economic, (c) racial/ethnic, and (d) limited English proficiency. If schools fail to reach AYP expectations for any subgroup, progressive sanctions of the schools will occur. In IDEA (2004), the revised law allows states to replace the I.Q.-achievement discrepancy model with using a student's response to research-based interventions (RtI) to determine LD eligibility. Approved MiBLSi schools receive a three-year training and implementation support program to develop behavior and RtI literacy support systems to improve learning opportunities for all students. As the state of Michigan spends over three billion dollars annually to educate students with disabilities (MDE, 2009), an evaluation of this state-sponsored initiative is prudent.

The purpose of this study was to examine the effectiveness of the MiBLSi framework by determining: (a) if there was a reduction of LD identification rates, (b) whether there was a difference in LD identification rates between participating MiBLSi schools and non MiBLSi schools within the state of Michigan, and (c) whether gender impacts LD identification rates.

This research is necessary due to the declining budgets of Michigan's schools, extra costs associated with teaching students with LD, and the increasing numbers of students identified as LD (See Fuchs & Fuchs, 2006; White, 2008). This chapter includes summaries of the methodology and discussions of the findings as it relates to each research question, implications of the research, recommendations for further research, and a conclusion for this study.

This study was limited to MiBLSi Cohort 3 (N=45) in 2006-2007 school year through 2009-2010 school year. Five additional schools were not included in this study as those schools were closed. Cohort 3 schools were determined through the acceptance and qualifications set forth by MiBLSi. All approved MiBLSi schools in this cohort had: (a) 80% of the staff committed to the MDE program for a minimum of three years; (b) reading and behavioral goals in school improvement plans; and (c) established building leadership teams (MiBLSi, 2008a). In addition, schools were required to implement systems for multi-tiered RtI reading and behavioral supports and a team-based approach which utilizes student reading and behavioral data for decision making (MiBLSi, 2004a).

Methodology Summary

A quantitative research approach was used to answer all null hypotheses. To address the first, second, and fourth null hypotheses, a pre-experimental, one group pretest-posttest design was utilized. This study used IDEA (2004) December 1st SE counts to examine if: (a) MiBLSi schools were able to significantly reduce their LD identification rates, (b) there was a reduction of males identified as LD, and (c) there was a reduction of females identified as LD. As required by IDEA (2004), schools that provide SE services must submit annual SE student count by December 1st (Michigan Department of Education, 2009).

For the third, fifth, and sixth null hypotheses in this study, a pretest-post test control group design was utilized to compare the state of Michigan LD average to the identification rate of (a) MiBLSi schools, (b) males, and (c) females. Both the control group, (i.e., non-MiBLSi schools) and treatment group (i.e., MiBLSi schools) submitted annual SE referral data to the MDE for the IDEA (2004) SE count.

Data was analyzed using SPSS Statistical Software. Descriptive statistics, including mean and standard deviation, frequencies, and percentages, as were used to provide an analysis to each of the research questions. Quantitative statistical techniques were used to determine whether there was a relationship between LD rates of MiBLSi and the state of Michigan.

Summary and Discussion of Findings

Quantitative analysis techniques were used to investigate all null hypotheses. Data from MiBLSi Cohort 3 (n=45) and all public of schools in the state of Michigan were used in this study. Of Cohort 3, the study included 43 elementary and one middle school, and one junior high school.

In 2006-2007 school year, Cohort 3 educated 14,854. Of those 7,165 were females and 7,699 were males. School enrollment within the schools ranged from 37 to 682 students with the average school population at 330 students. This cohort also educated 644 LD students. Of those, 201 were females and 443 were males.

State-wide enrollment in 2006-2007 school year totaled 1,660,380 students. Of those, 807,976 were females and 852,394 were males. In addition 31,270 were identified as female LD, and 60,654 were identified as male LD, thus, yielding a total of 91,924 LD students.

In 2009-2010 school year, Cohort 3 schools educated 14,950 students. School enrollment ranged from 69 to 703 students with the average school number at 332 students. During this school year, 586 students were classified as LD. Of those, 197 were females and 389 were males.

State-wide enrollment in 2009-2010 school year totaled 1,576,330 students. Of those, 766,215 were females and 810,121 were males. In addition, 29,214 were identified female LD and 52,517 were identified as male LD, thus yielding a total of 81,731 LD students

Null Hypothesis 1

The focus of the first null hypothesis was the relationship between MiBLSi schools and LD rates. The null hypothesis was:

H₁: There will be no significant difference in before and after comparison in the reduction of students identified as LD in MiBLSi Cohort 3 schools.

Summary

A t-test was used to compare the means of Cohort 3 LD identification rates from 2006-2007 school year to 2009-2010. The null hypothesis was not rejected at a .05 significance level, thereby indicating there was not statistical significant reduction of the rate of LD students in the three year implementation program. The overall LD rate, however, was reduced from 4.34 percent to 3.91 percent but was not statistically significant despite the .43 percent drop. Although Cohort 3 total student population remained fairly consistent with a net gain of additional 96 students over the three year study period, the percentages of the LD rates did not drop significantly.

Discussion

RtI MiBLSi. MiBLSi (2004) operationalizes RtI in a common three tier model and does not explicitly dictate when a student should be referred for SE services. The conceptual model of this dissertation depicts the importance of a systematic approach in the delivery of sound educational practices. MiBLSi (2004) contends this multi-level model provides continual support to students who struggle with reading and behavior. For example, in Tier 1, all Cohort 3 students received core reading or behavioral instructional interventions in the general education classroom with the purpose of preventing additional reading and behavioral problems. Tier 2 students received targeted interventions in small group settings to improve areas of reading or behavioral deficits. If students were not successful in this level, students received additional intensive individualized interventions with on-going assessments in Tier 3. As most RtI models use the Tier 3 for the SE referral process, MiBLSi does not support this common practice.

MiBLSi LD. MiBLSi (2006) addresses LD determination by noting students entering into Tier 3 should not automatically qualify them for SE services. They assert their model allows for (a) responsive interventions, (b) increased instructional time, (c) increased explicit instruction, and (d) small group learning. MiBLSi (2006) concludes that a comprehensive evaluation, including student data (i.e., observations, standardized norm tests, and curriculum based measures,) may be necessary for SE eligibility. Observations, standardized and norm tests may be included in the comprehensive evaluation (National Research Center on Learning Disabilities, 2006a). Consequently, due to the lack of national or state standardization of LD eligibility and decision rules within an RtI framework, practitioners will continue to struggle to build models for their schools (Fuchs, Moch, Morgan & Young, 2003) Furthermore, Fuchs et al., (2003) contend schools are looking for guidance on a valid means of disability identification using the

RtI model. Therefore, due to the lack of guidance, it is likely that individual Cohort 3 schools operationalized LD eligibility by district rules and protocols with a lack of standardization and continuity between the schools in this cohort. Interestingly, the lack of decision rules is reminiscent of variability concerns with the previous IQ achievement model for LD determination.

Early literacy practices. Another plausible explanation for the lack of statistically significant results may be the recent implementation of early literacy practices in Cohort 3 schools. Lyons & Fletcher (2001) argue children need early preventative intervening with sound reading instruction in phonics, phonological awareness, fluency, and reading comprehension to increase reading skills. Furthermore many scholarly researchers assert early literacy practices are likely to prevent reading failure in later elementary grades or reduce LD referrals (See Coyne., 2004; Lyons & Fletcher, 2001; Torgensen, 2009). While Cohort 3 school leadership teams received three years of implementation support including professional development in reading priorities and sound reading practices and assessments, individual schools' may likely be in the process of developing evidence-based practices to prevent reading deficits. As noted earlier, successful wide-scale implementation may take many years to fully implement due to the complexity, preparation, time and resources needed (See Jimerson, Burns, & VanDerHeyden, 2007; Kovalski, 2007; Batsche, G., Elliott, J., Graden, J.L., Grimes, J., Kovalski, J.F., Prasse, D., et al., 2005; Center on Positive Behavior Support, 2004.)

Barriers and limitations. Any change initiatives may require removing barriers to sustain efforts (Kotter & Cohen, 2002). Participants may need support (i.e., resources and tools) to be successful as some change initiatives may be long journeys (Black and Gregersen, 2003). The National Association of State Directors of Special Education (2006) argues if schools continue to

provide professional development in (a) preventing reading problems, (b) using research-base instruction and high quality interventions, and (c) screening and progress monitoring, an increase of reading performances is likely. To that end, it may take additional time to statistically reduce LD rates in the Cohort 3.

Null Hypothesis 2

The focus of the second null hypothesis was the relationship between MiBLSi Cohort 3 schools and male LD rates. The null hypothesis was:

H₂: There will be no significant difference in LD identification of males in MiBLSi Cohort 3 schools

Summary

A t-test was used to compare the means of the Cohort 3 male LD identification rates from 2006-2007 school year to 2009-2010 school year. The null hypothesis was not rejected at a .05 significance level, thereby indicating there was not statistical significant reduction of the rate of male LD rates of MiBLSi Cohort 3 in their three year implementation program. The overall male LD rate, however, was reduced from 5.75% to 5.05%, but was not statistically significant despite the .70 percent reduction. The MiBLSi male LD population was reduced by 54 students during the three years of implementation. These findings suggest MiBLSi practices were successful in reducing LD rates; however, the reduction was not statistically significant. The findings are also consistent with null hypothesis number 1 as Cohort 3 was able to reduce the number of males identified as LD, but did not meet the threshold of being statistically significant.

Discussion

Behavior. The overrepresentation of males in LD is a common phenomenon. Researchers in the field argue males are more likely to be referred than girls because of behavioral difficulties that result in classroom disruptions (Wehmeyer & Schwartz, 2001; Sideridis et al., 2008). According to Ormrod (2007), boys are more likely to engage in misbehavior, physical aggression, and hyperactivity resulting in negative teacher attention and classroom removal. Thus, the initial results point to the possibility that student behaviors may still play a factor in LD rates. A basic tenet of any PBS model is to provide effective interventions to reduce or eliminate problem behaviors in students. As the findings of this null hypothesis indicate that there was not a reduction of LD males students in Cohort 3, an evaluation of MiBLSi PBS treatment (i.e., interventions) fidelity, should to be considered.

PBS fidelity. To address PBS, Cohort 3 schools utilized a three tier support model for its practices. Tier 1 practices included school-wide behavior reward system and universal screening identifies and rank students for targeted interventions. Tier 2 provided students with targeted interventions focusing on social skills instruction. In addition to instruction, student may have behavior plans, daily report cards, check in/checkout forms to monitor behavior. In Tier 3, intensive interventions are afforded to students who are resistant to Tier 1 and Tier 2 interventions. However, the varying and complex protocols and the demands and responsibilities of the teacher may prohibit interventions being delivered with fidelity (Mastropieri & Scruggs, 2005). To maximize treatment fidelity, Kovalesski (2007) suggests the following components: (a) intense and on-going profession development training of treatment protocols, (b) collaborative support structures (i.e., study groups and teacher networking) and (c) administrative follow-through. Thus, Cohort 3 schools may want to evaluate PBS treatment fidelity as it relates to

student outcomes. This study, however, does not account for implementation fidelity. Future studies could address this variable by examining fidelity protocols within Cohort 3. Based on the conceptual model of this research study, failure to implement PBS with fidelity could hinder the ability to reduce LD rates.

Null Hypothesis 3

The focus of the third null hypothesis was the relationship between MiBLSi male LD rates to the state of Michigan. The null hypothesis was:

H₃: There will be no significant difference in LD identification of males in MiBLSi and non-MiBLSi schools.

Summary

A z-test was used to compare the means of Cohort 3 male LD identification rates and the state of Michigan from 2006-2007 school year and 2009-2010 school year. The z-test merely examines the difference between the means in the given school years. The results indicated a 100 percent level of statistical significant difference in the male LD rates for Cohort 3 and the state of Michigan for both 2006-2007 and 2009-2010. However, in order to determine if the LD change rate was significantly different over the three year period, a t-test was utilized.

In 2006-2007, 5.75% of males in Cohort 3 were classified as LD while the rest of the state of Michigan identified 7.12% of the male population as LD. As the data suggests, initial Cohort 3 LD rates were considerable lower compared to the state of Michigan.

In 2009-2010, MiBLSi schools reduced their male LD rate to 5.05% and the state of Michigan reduced to 6.48%. This data also indicates MiBLSi schools had a significantly lower LD rate than the rest of the state of Michigan. A t-test was used to determine whether the male

LD change rate was significantly different between non-MiBLSi and MiBLSi Cohort 3 schools. Based on t-test results there was not a significant difference in the male LD change rate between MiBLSi and non-MiBLSi schools from year 2006 to 2009. Both MiBLSi and non-MiBLSi schools reduced their male LD rate by amount. MiBLSi reduced their male LD rate by .70 percent while the rest of the state reduced their male LD rate by .64 percent. Therefore the null hypothesis cannot be rejected.

Discussion

Resources. A possible explanation of the failure to reject the null hypothesis is the limited resources (i.e., trained personnel) to monitor PBS practices and systems in non-MiBLSi schools. In 2006, the Michigan State Board of Education adopted a policy stating school districts implement school wide PBS systems to promote “prosocial and respectful learning environments.” Furthermore, as part of IDEA (1997/2004) the office of Special Education and Early Intervention Services (OSE-EIS) may require schools to develop or implement PBS strategies for students with individual education programs (IEPs) who have been suspension/expulsion rates. Alarming, the increasing trend to expel or suspend LD students has heightened the need for behavioral interventions and support as boys are more likely than girls to be expelled (See Zhang, Katsiyannis, & Herbst 2004; Guns Free School Act, 2004). Consequently, in related implementation literature, the MDE acknowledged that schools may lack the necessary trained personnel to implement PBS efforts but recommends schools identify such persons to guide individual school or district PBS efforts (MDE, 2010). Sugai & Horner (2006) argue coordinating policies and monitoring PBS implementation are crucial to sustainability. Unlike MiBLSi schools that have designated leadership teams with their sole

focus on reading and behavior supports, non-MiBLSi schools appear lack the necessary resources vital for effective PBS systems and practices.

Financial limitations. Diminishing financial resources may also be a contributing factor of the failure to reject the null hypothesis. The economic crisis in Michigan has created a significant shortfall in state revenue (See Steely, 2007; White 2008). Thus, schools are reducing staff and making program cuts. As Non-MiBLSi schools were not afforded an annual stipend to offset the cost of PBS implementation practices, it may be unlikely for non-MiBLSi schools to secure the necessary financial resources due to the states' financial outlook.

Cultural limitations. Embedding a school's culture and environment with PBS practices requires schools to change existing environments from a punitive system to promoting positive learning experience (Sugai & Horner, 20006). Schein (2004) argues, however, that shaping a school's culture may take time as an organization's culture is deeply rooted with traditions, values, and beliefs. Historically, schools have used generally accepted punitive measures (i.e., suspensions, detentions, etc.) to manage student behavior and 'get tough approaches' to combat increasingly challenging behaviors (PBS, 2009). In Michigan, for example, it is culturally acceptable for schools to use exclusionary practices for challenging behavior problems (Michigan Nonprofit Association, 2003). Interestingly, the result of these practices continues to shape people's behavior and attitudes (Schein, 2004). Nonetheless, MiBLSi (2004) advocates schools depart from traditional reactive and consequential policies and programs of a punitive nature and create new school-wide prevention systems and practices that teach, monitor, and correct inappropriate behavior. Lessons are also created and coordinated by the schools' PBS teams, taught to students, and the behavior is monitored by all staff members throughout all school settings. This fundamental shift requires schools and staff to adopt and coordinate new

systems to reward exhibited positive behavior. It may take time to decipher the new norms and assumptions of the culture. Shared history of the staff and students juxtaposed with the traditional punitive approaches to reinforce student learning (behavior) may take additional time to assimilate (Schein, 2010). Therefore, a possible explanation of the failure to reject the null hypothesis is the need for additional time to embed PBS practices within Cohort 3.

Null Hypothesis 4

The focus of the fourth null hypothesis was the relationship between MiBLSi schools and female LD rates. The null hypothesis was:

H₄: There will be no significant difference in LD identification of females in MiBLSi Cohort 3 schools.

Summary

A t-test was used to compare the means of Cohort 3 female identification rates from 2006-2007 school year to 2009-2010 school year. The null hypothesis was not rejected at a .05 significance level, thereby indicating there was not statistical significant reduction in Cohort 3 female LD rates in their three year of implementation. The overall female LD rate was reduced from 2.81 percent to 2.72. Although Cohort 3 total student population remained fairly consistent over the three year study period, the percentages of the LD rates did not drop significantly.

Discussion

Gender disproportion. Historically, SE identification methods have been highly subjective as researchers contend that the referral process, prior to IDEA (2004) allowed for bias in teacher referral. Gresham (2007) argued this bias lead to a disproportion overrepresentation of males due to their overt behavior and aggressiveness which may be as often as 2:1 from their

counterparts. Wehmeyer & Schwartz (2001) contends teachers either are less likely to refer females or delay a referral as females are thought to be more pleasant and passive and behave in socially acceptable ways than boys. Furthermore, they conclude the delay in SE referrals and identification for females leads to wider achievement gaps as they are delayed extra academic support. NCLB (2001) has focused its legislation on the over identification of minority groups, but little attention has been given to gender disproportionality. Although the research findings do follow Gresham's (2007) argument of gender ratio disproportion, further investigations of academic achievement of Cohort 3 females may be warranted. This investigation may include the study of academic achievement in females and males to determine whether females were actually achieving higher than males to account for the low ratio of females referred to SE. Additionally, comparing female academic achievement to males would strengthen the argument that teacher bias is a significant factor in LD identification rates.

Low initial rate. Although the findings revealed there was not a statistically significant reduction of female identification rates, Cohort 3 had an initially low percentage in 2006-2007 school year. This initial low percentage makes it challenging to demonstrate a statistically significant reduction over a three year period and may take several years to reach the statistically significant level due to the initial LD female percentage rate. In addition, the low female LD rate in MiBLSi Cohort 3 schools may be evidence of preexisting conditions and practices in place before entry into MiBLSi. Null Hypothesis six discussions will expound on preexisting conditions and practices.

Null Hypothesis 5

The focus of the fifth null hypothesis was the relationship between MiBLSi female LD rates to the state of Michigan. The null hypothesis was:

H₀: There will be no significant difference in LD identification of females in MiBLSi and non-MiBLSi schools.

Summary

A z-test was used to compare Cohort 3 female LD identification rates versus the state of Michigan from 2006-2007 school year and 2009-2010 school year. The z-test merely examines the difference between the means in the given school years. There was a statistical significant difference between MiBLSi LD females and the state of Michigan before MiBLSi implementation in 2006-2007 school year and after MiBLSi implementation in 2009-2010 school year. This indicates MiBLSi Cohort 3 schools entered MiBLSi and ended MiBLSi with statistically significantly less female LD students than non-MiBLSi schools. However, in order to determine if the LD change rate was significantly different over the three year period, a t-test was utilized.

In 2006-2007 school year, the MiBLSi female LD population was 2.81 percent, and the state of Michigan female population was 3.87 percent. In 2009-2010 school year, MiBLSi schools reduced their female LD rate to 2.72 percent and the state of Michigan reduced rates to 3.81 percent. In order to determine if LD female rate change differed between MiBLSi Cohort 3 non-MiBLSi schools, a t-test was utilized. Based on the result of the t-test there was not a significant difference in the change in the female LD rate between MiBLSi and non-MiBLSi schools from year 2006 to 2009. During the three year period, MiBLSi Cohort 3 female LD rate dropped .09 percent while the rest of the state of Michigan was reduced by .06 percent. Therefore, the null hypothesis was not rejected at a .05 significance level,

Discussion

Resources. As the findings indicated there was a significant difference in LD identification of females in MiBLSi and non-MiBLSi schools, and the findings are consistent with the findings in null hypothesis three. However, LD change rate was not significantly different between MiBLSi and non-MiBLSi schools. As noted earlier, the lack of resources to monitor PBS practices and systems in non-MiBLSi schools may be a factor in the failure to reject the null hypothesis although the state recommends such personnel. Consequently, Michigan schools are experiencing a reduction of state funding due to significant shortfall in state revenue (Steely, 2007). Thus, it may be unlikely that individual schools add the necessary personnel required to monitor PBS systems.

Federal Mandates. NCLB's (2001) key goal is for all students to achieve 100% proficiency in Reading and Math by 2014 and make annual student achievement benchmark goals by using sound instructional practices. As noted earlier, schools must report AYP of student achievement data required by NCLB (2001). Within the reporting data, schools are required to separate student achievement data into four subgroups: (a) students with LD, (b) socio-economic, (c) racial/ethnic and (d) limited English proficiency. If a school does not meet the state required targeted goal of any subgroup, it may face progressive sanctions that could include replacing staff relevant to the failure, extended school year with supplemental services, or/and reopening the school as a public charter school. Statewide, in 2009-2010, targeted schools in need of improvement dropped from 453 to 386 and an additional 49 schools were moved from sanctions due to increased AYP results (Center for Educational Networking, 2011). To that end, NCLB's (2001) emphasis on increased accountability may have a positive impact

with Cohort 3 schools and non-MiBLSi schools as they have lowered female LD rates from 2006 to 2009.

Null Hypothesis 6

The focus of the sixth null hypothesis was the relationship between MiBLSi LD rates to the state of Michigan LD rates. The null hypothesis was:

H₆: There will be no significant difference in LD identification of MiBLSi Cohort 3 and non-MiBLSi schools.

Summary

A z-test was used to compare the means of Cohort 3 LD identification rates and the state of Michigan from school years 2006-2007 to 2009-2010. There was a statistical significant difference between the rate of identification of LD between MiBLSi schools and the state of Michigan before MiBLSi implementation in 2006-2007 school year and after MiBLSi implementation in 2009-2010. Both 2006-2007 and 2009-2010 were 100% significant. In 2006-2007, the MiBLSi LD rates was 4.34% and the state of Michigan LD rate was 5.53%. In 2009-2010, MiBLSi Cohort 3 schools reduced their LD rate to 3.91% while the state of Michigan reduced the LD rate to 5.18%. Overall both MiBLSi Cohort 3 and the rest of the State of Michigan reduced their LD rate. However, there is a statistically significant difference between MiBLSi Cohort 3 and the rest of the state of Michigan both in 2006 and 2009.

However, based on t-test results there was not a significant difference in the LD change rate between MiBLSi and non-MiBLSi schools from year 2006 to 2009. Over the three year period, MiBLSi Cohort 3 reduced their overall LD rate .43%, while the rest of the state of

Michigan reduced their overall LD rate .35%. The null hypothesis was not rejected at a .05 significance level.

Discussion

Leadership. A possible explanation for the lower LD rates in Cohort 3 versus the state is Cohort 3 schools had key pre-existing components established in their schools prior to MiBLSi acceptance, and these components may have influenced the readiness to implement the MiBLSi framework. One key pre-existing component was effective school leadership in change initiatives. Prior to acceptance, schools must have 80% of the staff and building administration commit to the MDE program for a minimum of three years. The positive correlation between principals who initiate and maintain programs and successful school initiatives is well documented (Sprague and Horner, in press). Dufour and Berkley (1995) add principals who create consensus are likely to achieve goals and move the school in a focused direction. Conversely, if principals force initiatives upon staff, resistance may occur (Black & Gregersen, 2003). This required commitment of the staff and building leadership may have underscored the importance of effective school leadership in change initiatives.

Shared values. A second pre-existing component established prior to MiBLSi acceptance was the cultivation of shared values. Dufour and Berkley (1995) argue shared values communicate specific behaviors and attitudes, thus promoting a common purpose within a school. The MDE (2006) required all public schools to set measurable goals and objectives based on school needs and student data to improve student achievement. Furthermore, MDE required schools to have a goal for each of the core subjects (i.e., science, social studies, English-language arts, and math). All MiBLSi Cohort 3 schools, however, were also required to develop reading

and behavior goals with action plans prior to acceptance. It is possible these goals with action plans may be a contributing factor for entering and exiting MiBLSi with a lower LD rate.

Leadership teams. A third pre-existing component established prior to MiBLSi acceptance was the existence of leadership teams. All Cohort 3 schools were required to establish leadership teams prior to acceptance. Unlike non-MiBLSi schools that may have a school improvement team to oversee all school improvement goals, the MiBLSi leadership teams function as a subgroup of school improvement. Their role is to solely focus on reading and behavior supports. Furthermore, the composition of this team requires some of its members to be experts in behavior and reading/literacy. This effort may be crucial as 80% of students with LDs have reading difficulties (Fuchs & Fuchs, 2006) and may be critical to ensuring efficiency and building capacity (Sugai & Horner, 2006) Thus, it may be likely that the cohort has pre-existing structures and routines to eliminate barriers for learning and system sustainability.

LD criteria. Another possible explanation for non-MiBLSi schools having higher LD rates than MiBLSi schools is the use of the alternative methods as a means to identify students with LD. To determine the existence of LD, MDE (2010) requires schools to use (a) the student's response to scientific research-based interventions or (b) a pattern of documented strengths and weaknesses in performance and/or achievement relative to age. Furthermore, MDE allows individual schools and/or school districts to operationalize LD eligibility. For example, one school district's decision rules for LD may be different from another district's. As the state of Michigan allows flexibility of eligibility, the potential variability among non-MiBLSi schools in determining LD is likely. As noted previously, LD determination in MiBLSi (2006) is based on a comprehensive evaluation. They suggest schools use student data (i.e., observations,

standardized norm tests, responsiveness to interventions, and curriculum based measures) in addition to the three-tiered model in determining eligibility.

Conclusions

The findings from this research indicate the MiBLSi framework and practices may have a positive impact on LD rates. Cohort 3 LD rates, including both male and female, were statistically lower compared to non-MiBLSi schools for both 2006-2007 school year and 2009-2010 school year. It is plausible that Cohort 3 had preexisting components prior to MiBLSi acceptance that lead to the cohorts' readiness of RtI and PBS practices.

The findings from this research also indicate Cohort 3 did not significantly reduce the LD rates, including male and female, during the MiBLSi three year implementation period. The overall LD rate was reduced; however, not at a significant rate. The lack of guidance for LD eligibility rules within Cohort 3 may be a contributing factor for the findings. Additionally, Cohort 3 may still be developing sound early literacy practices to prevent reading problems as it may take additional time to build wide-scale implementation practices.

Implications

The results of this study contribute to the current integrated PBS/RtI research base. A profile of the current status of MiBLSi LD identification rates is also presented. The information provides a baseline for future studies related to Cohort 3 and an opportunity for policymakers to evaluate the MiBLSi framework and supports afforded to schools. With any school initiative, Sugai, Sprague, Horner, & Walker, (2000) argue a self evaluation is essential for continued growth. As NCLB (2001) and IDEA (2004) emphasizes accountability and improving student achievement for all students. The MiBLSi model integrates RtI practices and Positive Behavior

Supports affording schools the necessary academic and behavioral systems to deliver successful outcomes for all students (Gresham, 2001). To that end, MiBLSi and school districts in future cohorts may use this information to compare data from this study to examine their practices and any future reform efforts.

The conceptual model for improving student achievement via NCLB and IDEA (2004), and the principles associated with RtI and MiBLSi is plausible, but may take more time to yield lower LD rates. These federal mandates emphasize the importance of improving academic achievements for all students by linking accountability to early literacy success. IDEA (2004) also attempted to address the increasing numbers of LD students. Moreover, an alternative operational definition of LD, set forth in IDEA (2004), allows schools to discontinue the use of the I.Q.-achievement discrepancy model to a response to intervention model. The added component of behavioral learning theory suggests student achievement may improve if the principles are applied in classroom settings (Steele, 2005). There was consistent evidence in the literature review indicating that RtI practices increase the likelihood of reduced LD rates (Fuchs & Deshler, 2007). However, the findings of this study revealed no statistical difference within Cohort 3 during the three years of implementation.

An important practical implication from this study was the readiness of Cohort 3. The findings confirm that MiBLSi schools compared to non-MiBLSi schools had significantly lower LD rates. Effective school leadership, shared values, and leadership teams with reading/literacy experts may have influenced Cohort 3 schools LD rates. Furthermore, limited resources (i.e., trained personnel) to monitor PBS practices and systems in non-MiBLSi schools may be a factor.

The state of Michigan is currently facing an economic crisis, and schools are experiencing budget shortfalls impacting student programs (Steely, 2007). Future economic predictions

indicate schools will continue to face financial challenges. Response to Interventions practices not only may increase student achievement, but also reduce the need for costly special education services. MiBLSi offers a framework for schools to implement RtI practices. This study reflects the timely need to define RtI best practices and determines MiBLSi's effectiveness.

The over arching goal in public education is student learning. Federal legislation has specifically addressed this construct in IDEA (1997/2004) and NCLB (2001). These federal mandates emphasize the importance of improving academic achievements for all students by linking accountability to early literacy success. IDEA (2004) also attempted to address the increasing numbers of LD students by discontinuing the use of the I.Q.-achievement discrepancy model to a response to intervention model. This research is significant because it adds new knowledge to the field of LD and a blended RtI/PBS initiative. However, several areas of additional research may be prudent as accountability in education is what society demands.

Recommendations for Further Research

As federal mandates increase accountability standards, the field of PBS and RtI will continue to grow. Through additional research in an integrated RtI and PBS model, school leaders and teachers may glean additional information to alter initiatives to provide a better model to reduce LD rates. Their roles as educators will require them build strong instructional programs for all students (National Research Center on Learning Disabilities, 2006a).

Longitudinal study. The focus of this research was to investigate an RtI state initiative and explore whether this initiative was a predictor of LD rates. Further research in the exploration of MiBLSi Cohort 3 is recommended which involves following the cohort for three additional years. MiBLSi (2004a) provided this cohort training, technical assistance, regional and state-wide networking and professional development for three years. The comparability of LD rates

from 2006-2007 school year through 2012-2013 school year may provide evidence of a reduction of LD rates. Kovaleski (2007) notes that RtI is in the pioneering phase as early models began in the 1990's with the advent of NCL (2001). Researchers in the field further suggest the current models for RtI may need between four-six years of time to for complete implementation due to staff development and district policies (See Kovaleski, 2007; Batsche, G., Elliott, J., Graden, J.L., Grimes, J., Kovaleski, J.F., Prasse, D., et al., 2005; Center on Positive Behavior Support , 2004). Torgesen, (2009) also argued some schools may be spending considerable amounts of time experimenting with interventions that may not produce measurable behavioral changes in learning. In theory, the conceptual model for this study, if implemented effectively, should impact SE identification rates. It is possible that additional time may produce a positive correlation between LD rates and MiBLSi schools to increase student success. As MiBLSi does not dictate specific interventions, individual MiBLSi schools must develop their own set of interventions that actually produce a positive behavior change. By expanding upon the time limitations of this study, a pre-test post-test research design would allow a researcher to study Cohort 3 from 2006-2007 school year through 2012-2013 school year.

Student achievement. The findings of this research did not identify a significant reduction of both males and females identified as LD in Cohort 3, thus further research exploring the relationship between overall student achievement and MiBLSi schools may be warranted. The conceptual model (p. 74) draws the correlation between MiBLSi practices and increased student achievement. The federal legislation of NCLB (2001), requires the annual testing of reading and math against state standards in grades three through eight and once again in high school. To add increased urgency to improving student achievement, all schools across the nation must have 100% proficiency in reading and math state-wide proficiency tests by 2013. In Michigan, for

example, the Michigan Educational Assessment Program (MEAP) is the assessment tool used by all public schools to meet this requirement and to determine AYP status for all public schools. This study did not explore MiBLSi practices and increased student achievement. Further research aimed at increasing student achievement, including both male and female, in MiBLSi schools is also recommended. This experimental research would involve a pre-test post-test research design. The research would determine whether this is a significant change in overall student achievement related to gender of MiBLSi schools and whether PBS practices reduce behavior problems and increase student achievement. The research would compare MEAP scores from entry year into MiBLSi and then compare MEAP scores after three years of MiBLSi implementation. This research would add credence to the conceptual model of RtI and PBS practices increasing student achievement.

Implementation fidelity. Research focusing on the interventions afforded to students in MiBLSi may merit an investigation. The lack of correlation between LD rates and MiBLSi Cohort 3 found in this study may be due, in part, to the increasing importance of intervention integrity. Intervention or treatment fidelity refers to the extent to which the actual intervention was implemented as intended (Kovaleski, 2007). One common component of an RtI model is the collection and evaluation of student data. If student data is not accurate, based on the intervention offered, instructional decisions and placements may yield a negative outcome. The National Association of State Directors of Special Education (2008) also adds treatment integrity is vital as they argue the outcome of the treatments play a large part in determining SE eligibility.

Based on learning theory, it is essential students receive the appropriate feedback to shape and encourage desired behavior (Skinner, 1953). Learning theory suggests consequences, both positive and negative, reinforce or extinguish behavior. Failure to properly implement

intervention plans would result in an inability to determine the success of RtI practices. Moreover, RtI LD diagnosis often presupposes interventions are carried with a high level of integrity (Kovaleski, 2007). This experimental research would involve comparing intervention outcomes of schools with high levels of treatment integrity with schools that did not follow treatment integrity. For example, MiBLSi could require schools use a variety of data collection tools to specifically track the type, duration, and intensity of interventions. The outcomes data, including LD rates and MEAP scores, would be compared to schools not using integrity tracking tools. An ANOVA analysis could be used to determine significance between the various measures and schools. Kovaleski (2007) argues little research has been done with treatment integrity with practitioners (i.e. teachers) and has been largely neglected in research and practice.

Additional MiBLSi research could include case studies where schools have shown significant reductions in LD rates. Using a qualitative research model may give guidance on best practices for research-based interventions in both classrooms and on a school-wide scale. By studying successful schools patterns, best practices for reducing LD rates and increasing student achievement may emerge.

Summary

MiBLSi is Michigan's answer to the federal mandate of RtI legislation. Since its inception in 2003, this Michigan Department of Education initiative integrated Positive Behavior Supports and RtI to assist challenging learners. The purpose of this study was to investigate the effectiveness of the MiBLSi framework by determining: (a) if there was a reduction of LD identification rates, (b) whether there was a difference in LD identification rates between participating MiBLSi schools and non MiBLSi schools within the state of Michigan, and (c) whether gender impacts LD identification rates.

The findings from this research indicate the MiBLSi initiative may have a positive impact on LD rates. In both 2006-2007 school year and 2009-2010 school year, MiBLSi Cohort 3 LD rate, including males and females, were statistically lower compared to non-MiBLSi schools. This may be a reflection of MiBLSi Cohort 3 schools had pre-existing practices in place before entering into the MDE initiative. The preexisting practices of effective school leadership, staff by-in, shared values, and leadership teams to focus on reading and behavior goals and action plans may have played role in lower LD rates of Cohort 3. However, the LD change rate did not differ significantly between the state and MiBLSi Cohort for male, female, or total LD population. The LD rate change was very similar during the three year period.

Using before and after comparisons, MiBLSi Cohort 3 did not statistically reduce the rate of LD students from 2006-2007 school year to 2009-2010 school year. One possible explanation is the lack of strong early literacy practices. Researchers note that reading is complex, and Cohort 3 may still be in the process of developing evidence –based reading practices to reduce reading deficits. In addition, student behavior may still play a factor in LD rates. Although all Cohort 3 schools received PBS support, the Cohort 3 LD male rate was not significantly reduced. As males are more likely to be referred for SE than girls, Kovalski (2007) suggests schools provide on-going professional development training for treatment protocols and implementing interventions with fidelity.

The RtI framework creates opportunities for all students to be successful. It remains controversial, however, due to inconsistent decision rules for LD eligibility (Fuchs, Moch, Morgan & Young, 2003). Within Cohort 3, the findings suggest schools may have operationalized LD eligibility using district rules and protocols resulting in a lack of standardization and continuity between the schools. As MiBLSi continues to develop

implementation practices for future cohorts, it may be prudent to assist schools in developing LD eligibility rules and protocols.

APPENDIX A

REQUEST FOR APPROVAL FROM MICHIGAN DEPARTMENT OF EDUCATION

June 8, 2010

Dr. Jacquelyn Thompson, Director
Office of Special Education & Early Intervention Services
Michigan Department of Education
608 W. Allegan Street
PO Box 30008
Lansing, MI 48933

Ms. Beth Steenwyk
Project Director
Office of Special Education & Early Intervention Services/MI-3
Michigan Department of Education
608 W. Allegan Street
PO Box 30008
Lansing, MI 48933

Dear Dr. Thompson and Ms. Stennwyk,

I am writing to request permission to use data collected as part of *Michigan's Integrated Behavior and Learning Initiative* (MiBLSi) for my dissertation, titled *MiBLSi: An Examination of the Michigan Model and its Effects of Learning Disability Rates*. My plans are to examine MiBLSi schools, specifically Cohort 3, who has successfully implemented the minimum three year requirement of the initiative. In addition, my study will explore the relationship of learning disability rates between MiBLSi and nonMiBLSi schools using December 1st IDEA special education count. I am attaching the introduction section to my dissertation proposal to provide you more information about my study.

This research is a part of the requirements through Central Michigan University's Educational Leadership Doctoral Program where Dr. Sarah Marshall is the department chair. Dr. Betty Kirby, CMU professor, is my chair for this research and has approved my research proposal on June 7, 2010

For this study, I plan to examine the following measures:

- December 1st IDEA special education student count from 2006-2007 school year through school year 2008-2009 school year. Specifically, I seek to obtain special education student data that would only include (a) school and district, (b) gender, (c) grade, (d)

ethnicity, and (e) program eligibility. Student names will not be needed for this research study

- MiBLSi's Special Education Referral Form for each school in Cohort 3 from 2006-2007 school year through 2008-2009 school year.

All data collected for this study will be utilized to answer the following two research question:

1. Is the MiBLSi framework an effective RtI framework to reduce LD identification rates?
2. How does MiBLSi schools' LD identification rates compare to the state of Michigan average?

I plan to work closely with MiBLSi to ensure the appropriate use of its data.

I have attached a draft of an approval letter so that you can review, print on letterhead, sign, and return to me so I can submit it to Central Michigan University's Institutional Review Board for final approval. The attached draft is only meant as a guide. Please feel free to edit the letter as necessary. I may be contacted at (989)430-5261 or at hall4jj@cmich.edu. My dissertation chair, Dr. Kirby, can be reached at (989) 774-1503, or email: betty.kirby@cmich.edu.

Sincerely,

Jeff Hall, Educational Leadership Doctoral Candidate
Educational Leadership Department
Central Michigan University

REFERENCES

- Ardoin, S. (2006). The response to intervention: Evaluating the utility of assessing maintenance of intervention effects. *Psychology in Schools, 43*(6), 713-725.
- Bartle, H. (2009). *Implementation of the response to intervention model: Perceptions of change challenges and supports, and role shifts*. Unpublished doctoral dissertation, Central Michigan University, Mount Pleasant, Michigan.
- Batsche, G., Elliott, J., Graden, J.L., Grimes, J., Kovaleski, J.F., Prasse, D., et al. (2005). *Response to Intervention: Policy considerations and implementation*. Alexandria, VA: National Association of State Directors of Special Education.
- Berkeley, S., Bender, W., Peaster, L., & Saunders, L. (2009). Implementation of response to intervention. *Journal of Learning Disabilities, 42*(1), 85-95.
- Berninger, V. (2006). Research-supported ideas for implementing reauthorized IDEA with intelligent professional psychological services. *Psychology in Schools, 43*(7), 781-795.
- Black, J. S., & Gregersen, H. B. (2003). *Leading strategic change: Breaking through the brain barrier*. New York: Prentice Hall.
- Blonigen, B., Harbaugh, W., Singell, L., Horner, R., Irvin, L., & Smolkowski, K. (2008). Application of economic analysis to school-wide positive behavior support programs. *Journal of Positive Behavior Intervention, 10*(5), 5-19.
- Bohanon, H., Goodman, S., & McIntosh, K. (2008). *Integrating behavior and academic supports within an RtI framework: General overview*. Retrieved September 18, 2009, from <http://www.rtinetwork.org>.
- Brown v. Board of Educ., 347 U.S. 483 (1954).

- Cameron, S., Parks, L., Schulte, G., & Stiefel, G. (2006). *A critical point in time: Redefining the nature of a learning disability*. Michigan Association of Learning Disability Educators. Eastern Michigan University, Department of Special Education.
- Center for Educational Networking. (2006). *Focus on results*. Retrieved April 1, 2009, from www.cenmi.org.
- Center on Teaching and Learning. (n. d.). *Dynamic indicators of basic early literacy skills data systems*. Retrieved July 7, 2009, from www.dibels.uoregon.edu.
- Center on Teaching and Learning (n. d.). *Big ideas in beginning reading*. Retrieved June 10, 2010, from www.reading.uoregon.edu.
- Clay, M. (1987). Learning to be disabled. *New Zealand Journal of Educational Studies*, 22, 155-173.
- Clements, M. (2007). Using multilevel modeling to examine the effects of multitiered interventions. *Psychology in Schools*, 44(5), 503-513.
- Compton, D. L., Fuchs, D., Fuchs, L. S., & Bryant, J. D. (2006). Selecting at-risk readers in first grade for early intervention: A two-year longitudinal study for decision rules and procedures. *Journal of Educational Psychology*, 98(2), 394-409.
- Coyne, M. D., Kame'enui, E. J., & Simmons, D. C. (2004). Improving beginning reading instruction and intervention for students with LD: Reconciling "All" with "Each." *Journal of Learning Disabilities*, 37, 231-239.
- Creswell, J. (2002). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Merrill Prentice Hall.
- Creswell, J. (2003). *Research design: Qualitative, quantitative and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.

- Creswell, J. (2008). *Research design: Qualitative, quantitative and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Danielson, L., Doolittle, J., & Bradley, R. (2007). Professional development, capacity building, and research needs: Critical issues for response to intervention implementation. *School Psychology Review, 36*, 632-637.
- Davis, N., Lindo, E., & Compton, D. (2007). Children at risk for reading failure: Constructing an early screening measure. *Teaching Exceptional Children, 39*(5), 32-37.
- Deno, S. (2003). Developments in curriculum-based measurements. *The Journal of Special Education, 37*(3), 184-192.
- Deno, S., Fuchs, L., Marston, D., & Shin, J. (2001). Using curriculum-based measurement to establish growth standards for students with learning disabilities. *School Psychology Review, 30*, 507-526.
- Dexter, D., & Hughes, C. (n.d.). Progress monitoring within a response to intervention model. Retrieved September 12, 2009, from www.rtinetwork.org/index2.progressmonitoring.
- Donovan, M., & Cross, C. (eds.) (2002). *Minority Students in Special and Gifted Education, Committee on Minority Representation in Special Education*, Washington D.C.: National Academy Press.
- Dykeman, B. (2006). Alternative strategies in assessing special education. *Education, 127*(2), 265-273.
- Dynamic Indicators of Basic Early Literacy Skills. (n. d.). Retrieved September 10, 2009, from www.dibels.uoregon.edu.

- Erwin, R., Schaughen, E., Goodwin, S., McGinchey, M., & Matthews, A. (2007). Project to state initiative in Michigan: Lessons learned from merging research-practice agendas to address reading and behavior. In S. Jimerson, M. Burns & A. VanDerHeyden (Eds.) *Handbook of response to intervention: The science and practice of assessment and Intervention* (pp. 354-377). NY: Springer Publishing.
- Finn, C., Rotherham, A., & Hokanson, C. (2001). *Rethinking special education for a new century*. Retrieved June 10, 2010, from <http://www.ppionline.org>.
- Fiorello, C. (2006). Cognitive hypothesis testing and response to intervention for children with reading problems. *Psychology in the Schools*, 43(8), 835-853.
- Fletcher, J., Lyon, G., Fuchs, L., Barns, M. (2007). *Learning disabilities: From identification to intervention*. New York: Guildford Press.
- Fletcher, J. (2006). *Why RtI? Some research findings*. Retrieved August 15, 2009, from <http://www.centeroninstruction.org/files/RtIResearchAndPolicyFoundations.pdf>.
- Fletcher, J., Francis, D., Morris, R., & Lyon, G. (2005). Evidence-based assessments of learning disabilities in children and adolescents. *Journal of Clinical Child and Adolescent Psychology* 34(3), 506-522.
- Fraenkel, J.R., & Wallen, N.E. (2006). *How to design and evaluate research in education*. New York: McGraw Hill.
- Fuchs, D., & Deshler, D. (2007). What we need to know about responsiveness to intervention (and shouldn't be afraid to ask). *Learning Disabilities Research & Practice*, 22(2), 129-136.

- Fuchs, D., Deshler, D., & Reschly, D. (2004). National research center on learning disabilities: Multimethod studies of identification and classification issues. *Learning Research Quarterly*, 27(4), 189-194.
- Fuchs, L., & Fuchs, D. (2006). A framework for building capacity for response to intervention. *School Psychology Review*, 35(4), 621-626.
- Fuchs, D., & Fuchs, L. (2006a). Introduction to response to intervention: What, why, and how is it valid. *Reading Research Quarterly*, 41(1), 93-99.
- Fuchs, D., Fuchs, L., Compton, D., & Bryant J. (2005). Response to intervention: A new method of identifying students with disabilities. Powerpoint presented at the annual meeting of the Council for Exceptional Children, Kansas City, MO.
- Fuchs, D., Moch, D., Morgan, P., & Young, C. (2003). Response-to-intervention: Definitions, evidence, and implications for the learning disabilities construct. *Learning Disabilities Research & Practice*, 18(3), 157-171.
- Glover, T. (2007). Considerations for evaluating universal screening assessments. *Journal of School Psychology*, 45(2), 117-135.
- Good, R., & Kaminski, R. (2002). *Dynamic indicators of basic early literacy skills* (6th ed.) Eugene, OR: Institute for the Development of Educational Achievement.
- Good, I., Simmons, D., & Kame'enui, E. (2001). The importance and decision-making utility of a continuum of fluency-based indicators of foundational reading skills for third-grade high-stakes outcome. *Scientific Studies of Reading*, 5(3), 257-288.
- Goodman, S. D. (2004). *Leadership is essential for school-wide behavior and learning initiative*. Center for Educational Networking. Retrieved May 15, 2009, from www.cenmi.org/leadingchange/W04/article5a.asp.

- Gresham, F. (2001). Response to intervention: An alternative approach to identification of learning disabilities. Retrieved September 2, 2009, from <http://www.air.org/ldsummit/>
- Gresham, F., VanDerHeyden, A., & Witt, J. (2005). *Response to intervention and learning disabilities*. Riverside, CA: University of California Riverside.
- Gresham, F. (2007). Evolution of the response to intervention concept: Empirical foundations and recent developments. In S. Jimerson, M. Burns & A. VanDerHeyden (Eds.) *Handbook of response to intervention: The science and practice of assessment and Intervention* (pp. 10-24). New York: Springer Publishing.
- Hagen, K. (2008). A response to intervention approach to decreasing early literacy differences in first graders from difference socioeconomic backgrounds: Evidence for the intervention validity of the DIBELS. *Assessment for Effective Intervention, 34*(1), 35-42.
- Hartley, J. (1998). *Learning and studying. A research perspective*, London: Routledge.
- Hatch, M., & Cunliffe, A. (2006). *Organizational theory: Modern, symbolic, and postmodern perspectives*. New York: Oxford University Press.
- Horner, R., & Sugai, G. (n. d.). *School-wide positive behavior support*. Retrieved September 12, 2009, from www.pbis.org.
- Horner, R. (2003). Extended Positive Behavior Support to Whole Schools: Sustainable Implementation. Keynote address. First International Conference on Positive Behavior Support. Orlando, Florida. Retrieved November 2, 2009, from www.pbis.org.
- Horner, R., Sugai, G., Todd, A., Lewis, T. (2005). School-wide positive behavior support. In L. Bambara & L. Kern (Eds.), *Individualized supports for students with problem behaviors: Designing positive behavior plans*. (pp. 359-390). New York: Guildford Press.

- Huitt, W. (2006). Summary of theories relating to learning and development. *Educational Psychology Interactive*. Valdosta, GA: Valdosta State University. Retrieved February 10, 2010, from <http://chiron.valdosta.edu/whuitt/col/summary/lrndev.html>.
- IDEA (1975). Individuals with Disabilities Education Act of 1975 (Public Law 94-142).
- IDEA (2004). Individuals with Disabilities Education Improvement Act of 2004 (Public Law 108-144).
- Ikeda, M. J., & Gustafson, J. K. (2002). *Heartland AEA 11's problem solving process: Impact on issues related to special education*. Research report no. 2002-01. Johnston, IA: Heartland AEA 11.
- Illinois Positive Behavior Support Network (2008). Retrieved October 15, 2009, from http://www.pbis.org/common/pbisresources/publications/Illinois_Feb08_Update_021309.pdf.
- Individuals with Disabilities Education Improvement Act (IDEA) of 2004, PL 108-446, 20 U.S.C. §§ 1400 *et seq.*
- Institute of Educational Sciences (2009). Assisting students struggling with reading: Response to intervention and multi-tier intervention in the primary grades. Retrieved October 20, 2009, from http://ies.ed.gov/ncee/wwc/pdf/practiceguides/rti_reading_pg_021809.pdf.
- Itkonen, T. (2007). Education for all handicapped children act of 1975. *Issues in Teacher Education*, 16(2), 43-50.
- Jimerson, S., Burns, M., & VanDerHeyden A. (Eds). (2007). *Handbook of response to intervention: The science and practice of assessment*. NY: Springer Science and Business Media, LLC.

- Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. *Journal of Educational Psychology*, 80, 437-447.
- Kavale, K. (2005). Identifying specific learning disability: Is response to intervention the answer? *Journal of Learning Disabilities*, 38(6), 553-562.
- Kavale K., Holdnack, J., & Mostert, M. (2006). Response to intervention and the identification of specific learning disability: A critique and alternative proposal. *Learning Disability Quarterly*, 29(1), 113-127.
- Klinger, J., Artiles, A. J., Koleski, E., Zion, S., Tate, W., et al. (2005). *Addressing the disproportionate representation of culturally and linguistically diverse students in special education through culturally responsive educational systems*. Retrieved October 20, 2009, from <http://epaa.asu.edu/epaa/v13n38/v13n38.pdf>.
- Knesting, S. (2001). Zero tolerance, zero evidence: An analysis of school disciplinary practice. *New Directions for Youth Development*, 20, 17-43.
- Kotter, J. P. & Cohen, D. S. (2002). *The heart of change: Real life stories how people change their organizations*. Boston, MA: Harvard Business School Press
- Kovaleski, J. (2007). Response to intervention: Considerations for research and systems change. *School Psychology Review*, 36(4), 638-646.
- Learning Points Associates. (2007). *Implementation of response to intervention (RTI) in 7 Pak states: Approaches and lessons learned*. Retrieved July 20, 2009, from www.doe.virginia.gov/VDOE/studentsrvcs/RTI/resources.pdf.
- Lassen, S., Steel, M., & Sailor, W. (2006). The relationship of school-wide positive behavior support to academic achievement in an urban middle school. *Psychology in the Schools*, 43(6), 701-712.

- Lewis, T. J., Colvin, G., & Sugai, G. (2000). The effects of pre-correction and active supervision on the recess behavior of elementary school students. *Education and Treatment of Children, 23*(2), 109-121.
- Lewis, T. J., & Sugai, G. (1999). Effective behavior support: A systems approach to proactive school-wide management. *Focus on Exceptional Children, 31*(6), 1-24.
- Lyon, G. R., & Fletcher, J. M. (2001). *Early warning system*. Retrieved Aug. 24, 2004, from www.educationnext.org/20012/22.html.
- Machek, G., & Nelson, G. (2007). How should reading disabilities be operationalized? A survey of practicing school psychologists. *Learning Disabilities Research and Practice, 22*(2), 147-157.
- MacMillion, D., & Siperstein, G. (2002). Learning disabilities as operationally defined by schools. In R. Bradley, L. Danielson, & D. Hallahan (Eds.). *Identification of learning disabilities: Research into practice* (pp. 287-333). Mahwah, NJ: Lawrence Erlbaum.
- Marchand-Martella, N. E., Martella, R., Kolts, R., Mitchell, D., & Mitchell, C. (2006). Effects of a three tier strategic model of intensifying instruction using a research-based core reading program in K-3. *Journal of Direct Instruction, 6*, 49-72.
- Marston, D. (2005). Tiers of intervention in responsiveness to intervention: Prevention outcomes and learning disabilities identification patterns. *Journal of Learning Disabilities, 38*(6), 539-544.
- Mastropieri, M. A., & Scruggs, T. E. (2005). Feasibility and consequences of response to intervention: Examination of the issues and scientific evidence as a model for the identification of individuals with learning disabilities. *Journal of Learning Disabilities, 38*(6), 525-531.

- McCook, J. (2006). Implementing a response to intervention model. Retrieved October 20, 2009, from www.rtitools.com.
- McGlinchey, M., Schallmo, K., Goodman, S. (2008). *MiBLSi Overview*. Retrieved May 10, 2008, from www.cenmi.org/miblsi.
- Merriam, S. and Caffarella R. (1998). *Learning in adulthood: A comprehensive guide*. San Francisco: Jossey-Bass.
- Michigan Department of Education (2006). *Positive behavior support policy*. Retrieved March 5, 2011, from <http://www.michigan.gov/documents/mde/Positivebehaviorsupportpolicy>.
- Michigan Department of Education (2009). *Comparison of general education and special education cost for the 2006-2007 school year*. Retrieved March 21, 2009, from http://www.michigan.gov/documents/mde/06-07CostComparison_258002_7.pdf.
- Michigan Department of Education (2009). *Technical manual for submission of students with disabilities data*. Retrieved April 5, 2010, from <https://file.micis.org/micis/Help/2009TechManfinal.pdf>.
- Michigan Department of Education (2010). *School-wide positive behavioral intervention and support implementation guide*. Retrieved March 4, 2011, from http://www.michigan.gov/documents/mde/SchoolwidePBS_264634_7.pdf.
- Michigan's Integrated Behavior and Support Initiative. (2003). *A systems approach to supporting all behavioral and reading needs of all students*. Retrieved June 2, 2008, from www.cenmi.org.
- Michigan's Integrated Behavior and Support Initiative. (2004). *School-wide foundations*. Retrieved August 21, 2009, from www.cenmi.org/bebehavioreducaitonprograms.

- Michigan's Integrated Behavior and Support Initiative. (2008). *Main ideas*. Retrieved June 2, 2008, from www.cenmi.org/mainideas.
- Michigan Integrated Behavior & Learning Support Initiative. (2008a). *MiBLSi overview*. Retrieved August 15, 2009, from <http://www.cenmi.org/miblsi/Home.aspx>.
- Michigan Integrated Behavior & Learning Support Initiative (2009). *Support systems and sustained implementation of a data-driven, problem-solving model*. Retrieved August 15, 2009, from <http://www.cenmi.org/miblsi/Home.aspx>.
- Michigan Integrated Behavior & Learning Support Initiative (2009b). *MiBLSi data tools*. Retrieved August 15, 2009, from <http://www.cenmi.org/miblsi/Home.aspx>.
- Michigan Integrated Behavior & Learning Support Initiative (2009c). *MiBLSi measurement tools*. Retrieved August 15, 2009, from <http://www.cenmi.org/miblsi/MiBLSiModel/Evaluation/Measures.aspx>.
- Michigan Nonprofit Association. (2003). *Zero tolerance policies and their impact on Michigan students*. Retrieved November 1, 2009, from <http://www.mnaonline.org/>.
- Muijs, D. (2004). *Doing quantitative research in education*. London: Sage.
- Mills v. Board of Education of the District of Columbia, 348 F. Supp 866 (D. DC 1972).
- National Association of State Directors of Special Education. (n. d.) *Response to intervention: Policy consideration and implementation*. Retrieved October 20, 2009, from www.nasdse.org/projects/ResponsetoIntervention/RtIProject.
- National Association of State Directors of Special Education. (2006). *NASDSE and CASE white paper on RTI*. Retrieved May 10, 2008, from www.cenmi.org/miblsi.
- National Association of State Directors of Special Education. (2008). *Response to intervention: District Level Edition*. Retrieved August 1, 2009, from www.nasde.org.

- National Center for Educational Statistics (1996). *The nation's report card*. Retrieved June 10, 2010, from nces.ed.gov/nationsreportcard.
- National Joint Committee on Learning Disabilities. (2005). *Response to intervention and learning disabilities*. Retrieved August 2, 2009, from <http://www.ldonline.org/article/11498>.
- National Reading Panel. (1999). *Progress report*. Retrieved June 1, 2010, from www.nationalreadingpanel.org/publications/interim_report/section1.htm.
- National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Washington, DC: NICHD.
- National Research Center on Learning Disabilities. (2006a). *Learning disabilities user's guide*. Retrieved October 1, 2007, from <http://www.nrcl.org>.
- National Research Center on Learning Disabilities. (2006). *Response to intervention manual*. Retrieved October 1, 2007, from <http://www.nrcl.org>.
- National Research Center on Learning Disabilities. (2007). *Responsiveness to intervention in the SLD determination process*. Retrieved October 10, 2009, from www.nrcl.org.
- National Research Center on Learning Disabilities. (2009). *Disabilities and classification criteria* (2009). Retrieved August 16, 2009, from <http://www.nrcl.org/about/research/states/section1.html>.
- National Research Council (2002). *Minority students in special and gifted education*. Retrieved November 1, 2009, from http://www.nap.edu/catalog.php?record_id=10128.
- Newman, I. & Benz, C. (1998). *Qualitative-quantitative research methodology: Exploring the interactive continuum*. Southern Illinois University Press; Carbondale, IL.

- New York Education Department (n. d.). Children with Disabilities. Retrieved April 4, 2010, from http://www.archives.nysed.gov/edpolicy/research/res_guides_disability_hist.shtml.
- Noam, G., Warner, L., & Van Dykan, L. (2001). Beyond the rhetoric of zero tolerance: Long-term solutions for at-risk youth. *New Directions for Youth Development*, 20, 155-182.
- Ofiesh, N. (2006). Response to intervention and the identification of specific learning disabilities: Why we need comprehensive evaluations as part of the process. *Psychology in the Schools*. 43(8), 883-888.
- Office of Special Education Programs. (2001). *Prevention research & IDEA discipline provisions: A guide for school administrators*. Retrieved September 1, 2009, from www.ed.gov/offices/osers/osep/adminbeh.
- Office of Special Education Programs Center on Positive Behavior Support. (2004). *School-wide positive behavior support: Implementers blueprint and self assessment*. Retrieved September 10, 2009, from www.pbis.org.
- Ormrod, J. (2007). *Educational psychology: Developing learners* (6th ed.). Boston: Allyn & Bacon.
- P.A.R.C. v. Pennsylvania*, 334 F. Supp. 1257 (E.D.Pa.1971); 343 F.Supp. 279 (E.D.Pa. 1972).
- Pavlov, I.P. (1927/2003). *Conditioned reflexes* (G. V. Anrep, Trans.). New York: Dover. (Original work published in 1927).
- Petterson, S., Barley, W., Gomez, K. (2005). *Preventing and identifying learning disabilities implications of implementing a response to intervention pilot program*. Retrieved October 5, 2009, from <http://www.masp/responsetointervention>.
- Plessy v. Ferguson*, (1896). 163 U.S. 537.

- Reshley D. (2009). *Prevention of disproportionate special education representation using response to intervention*. Retrieved March 1, 2010, from www.tqsource.org/forum/index.php?topic=102.0.
- Reynolds, C., & Fletcher-Janzen, E. (Eds.). (2001). *Concise encyclopedia of special education: A reference for the education of the handicapped and other exceptional children and adults (Vols. 2-3)*. New York: Wiley & Sons.
- Reynolds, C., & Fletcher-Janzen, E. (Eds.). (2007). *Encyclopedia of special education: A reference for the education of the children, adolescents, and adults with disabilities and other exceptional individuals*. New Jersey: Wiley & Sons.
- Reichle, J. (1990). *National working conference on positive approaches to the management of excessive behavior: Final report and recommendations*. Minneapolis: Institute on Community Integration, University of Minnesota.
- Richards, C., Pavri, S., Golez, F., & Canges, R. (2007). Response to intervention: Building the capacity of teachers to serve students with learning disabilities. *Issues in Teacher Education, 16*(2), 55-64.
- Rudestam, K., & Newton, R. (2001). *Surviving your dissertation: A comprehensive guide to content and process*. Thousand Oaks, CA: Sage Publications, Inc.
- Sailor, W., Zuna, N., Choi, J.-H., Thomas, J., McCart, A., & Roger, B. (2006). Anchoring schoolwide positive behavior support. *Research and Practice for Persons with Severe Disabilities, 31*(1), 18-30.
- Sandomierski, T., Kincaid, D., & Algozzine, B. (2007). Response to intervention and positive behavior support: Brothers from different mothers or sisters with different misters? *Positive Behavioral Interventions and Supports Newsletter, 4*(2), 1-4.

- Schiller, E., & O'Reilly, F. (2003). Building opportunities for students with disabilities. *Special Education, 33*(3), 1-12.
- Shuell, T. J. (1993). Toward an integrated theory of teaching and learning. *Educational Psychologist, 28*(2), 291-311.
- Sibley, D., Biwer, D., & Hesch, A. (2001). *Establishing curriculum-based measurement oral reading fluency performance standards to predict success on local and state tests of reading achievement*. Washington, D.C.: National Association of School Psychologists. (ERIC Document Reproduction Service No. ED453527).
- Sideridis, G, Faye, A., & Padelidiado, S. (2008). Teacher bias in the identification of learning disabilities: An application of the logistic multilevel model. Retrieved July 10, 2010, from http://www.soc.uoc.gr/psycho/Documents/Sideridis_papers.pdf.
- Skinner, B. F. (n. d.). *A brief survey of operant behavior*. Retrieve February 20, 2010, from [www.BfSkinner.org/Bfskinner/surveyoperant behavior.html](http://www.BfSkinner.org/Bfskinner/surveyoperant%20behavior.html).
- Skinner, B. F. (1953). *Science and human behavior*. New York: MacMillion.
- Slavin, R. E. (2003). *Educational psychology theory and practice* (7th ed.). Boston: Allyn & Bacon.
- Smith, J.K. (1983). Quantitative versus qualitative research: An attempt to clarify the issue. *Educational Researcher, 12*(3), 6-13.
- Smith, M. K. (1999). *The behaviourist orientation to learning*. Retrieved February 20, 2010, from www.infed.org/biblio/learning-behaviourist.htm.
- Snow, C.E., Burns, M.S. & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.

- Sprague, J., & Horner, P. (in press). School wide behavioral supports. In S. Jimerson & M. Furlong (Eds.), *The handbook of school violence and school safety: From research to practice*. Mahwah, N.J. Lawrence Erlbaum Associates Inc.
- Steele, K. (2007). *Michigan's Economic Woes*. Retrieved April 4, 2010, from <http://thecaucus.blogs.nytimes.com/2007/10/09/michigans-economic-woes>.
- Steele, M.M. (2005). *Teaching students with learning disabilities: Constructivism or behaviorism?* Retrieved February 25, 2010, from <http://cie.ed.asu.edu/volume8/number10/>.
- Sugai, G., Guardino, D., & Lathrop, M. (2007). Response to intervention: Examining behavior support in second grade. *Council for Exceptional Children*, 73(3), 288-310.
- Sugai, G., & Horner, R. (2006). A promising approach for expanding and sustaining school-wide positive behavior support. *School Psychology Review*, 35(2), 245-259.
- Sugai, G., & Horner, R. (2009). *SW-PBS & RtI: Lessons being learned*. Retrieved September 17, 2009, from www.pbis.org.
- Sugai, G., Horner, R. H., Dunlap, G., Hieneman, M., Lewis, T. J., Nelson, C. M., Scott, T., Liaupsin, C., Sailor, W., Turnbull, A. P., Turnbull, H. R., III, Wickham, D., Wilcox, B., & Rief, M., (2000). Applying positive behavior support and functional behavioral assessment in schools. *Journal of Positive Behavior Interventions*, 2(3), 131-143.
- Sugai, G., Sprague, J., Horner, R., & Walker, H. (2000). Preventing school violence: The use of office discipline referrals to assess and monitor school-wide discipline interventions. *Journal of Emotional & Behavioral Disorders*, 8, 94-102.

- Telzrow, C. (2006). *Response to intervention: A paradigm for improving performance for all learners and identifying students with SLD*. Retrieved November 10, 2009, from http://www.ospaonline.org/pdf/presentations/RTI_telzrow0906.pdf.
- Thorndike, E. L. (1903/2009). *Educational psychology*. Ithaca: New York: Cornell University Library.
- Tobin, T., & Sugai, G. (2005). Preventing problem behaviors: Primary, secondary and tertiary level prevention interventions for young children. *The Journal of Early and Intensive Behavior Intervention*, 2(3). 125-144.
- Torgesen, J. (2009). *Preventing early reading failure and its devastating downward spiral*. Retrieved June 10, 2010, from <http://www.ncl.org/at-school/general-topics/early-learning-aamp-literacy/preventing-early-reading-failure-and-its-devastating-downward-spiral>.
- United States Department of Education. (1975). *Individuals with Disabilities Education Act of 1975*. Retrieved March 15, 2009, from <http://www.ed.gov/policy/speced/guid/idea/idea1975.html>.
- United States Department of Education. (2001). *No Child Left Behind Act of 2001*. Retrieved October 15, 2007, from <http://www.ed.gov/nclb>.
- United States Department of Education (2002). *President's Commission of Excellence in Special Education*. Retrieved March 15, 2009, from <http://ed.gov/inits/commissionsboard/whspeialeducation/index.html>.
- United States Department of Education. (2004). *Individuals with Disabilities Education Act of 2004*. Retrieved March 15, 2009, from <http://www.ed.gov/policy/speced/guid/idea/idea2004.html>.

- United States Department of Education. (n. d.). *A 25 Year History of the IDEA*. Retrieved August 1, 2009, from <http://www.ed.gov/policy/speced/leg/idea/history.html>.
- United States Department of Education. (2006). *Twenty sixth annual report to Congress on the implementation of the Individual with Disabilities Act*. Retrieved June 12, 2010, from <http://www2.ed.gov/about/reports/annual/osep/2004/index.html>.
- Upah, K., & Tilly, W. (2002). Best practices in designing, implementing and evaluating quality interventions. In A. Thomas & J. Grimes (Eds.). *Best practices in school psychology*, (4th ed.). (pp. 483-502). Bethesda, MD: National Association of School Psychologists.
- Vaughn, S., & Fuchs, L.S. (2003). Redefining learning disabilities as inadequate response to instruction: The promise and potential problems. *Learning Disabilities Research & Practice, 18*, 137-146.
- VanDerHeyden, A., Witt, J., & Barnett, D. (2005). The emergence of possible futures of response to intervention. *Journal of Psychoeducational Assessment, 23*, 339-361.
- Wang, C., & Algozzine, B. (2008). Effects of targeted interventions on early literacy skill on the at-risk. *Journal of Research in Childhood Education, 22*(4), 445-460.
- Wenmeyer M., & Schwartz M. (2001). Disproportionate representation of males in SE services. *Education and Treatment of Children, 24*(1), 28-45.
- White, T. (2008). *The number's count*. Retrieved April 4, 2010, from www.michiganedusource.org/Conferences/mw08/Factbook5-White.ppt.
- Zhang, D., Katsiyannis, A., & Herbst, M. (2004). Disciplinary exclusions in special education: A 4-year analysis. *Behavior Disorders, 29*(4), 337-347.

