The Impact of the Mississippi Department of Education's Dyslexia Grant Program on Third Grade Achievement

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THE University of Southern Mississippi

THE IMPACT OF THE MISSISSIPPI DEPARTMENT OF EDUCATION’S
DYSLEXIA GRANT PROGRAM ON THIRD GRADE ACHIEVEMENT

by

Cena Windham Holifield

Abstract of Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

December 2011
ABSTRACT

THE IMPACT OF THE MISSISSIPPI DEPARTMENT OF EDUCATION’S DYSLEXIA GRANT PROGRAM ON THIRD GRADE ACHIEVEMENT

by Cena Windham Holifield

December 2011

Dyslexia is the most common reading disability and is non-discriminatory, affecting learners of all races and cultures (Shaywitz, 2003). Scientific data reveals dyslexia affects 70-80% of students with poor reading skills (Moats & Dakin, 2008).

The Mississippi Legislature appropriates funds yearly to support the Mississippi Department of Education, (MDE) Grant Pilot Program (MDE, 2009). The purpose of this dyslexia grant program is to support general education teachers in meeting the needs of regular education students who have been identified as having dyslexia and related disorders (MDE, 2009).

The purpose of this study was to determine the impact of the MDE Dyslexia Grant Program on student achievement as measured by the MDE Mississippi Curriculum Test, Second Revision (MCT2). Pre and post standardized testing data were studied comparing third grade language arts MCT2 test scores before the school districts received the MDE Dyslexia Grant to MCT2 language arts test scores one year after implementing the intervention. Since funding amounts varied among grant recipients, dollar amounts were examined to determine if that affected achievement scores. Interviews were also conducted with school grant recipients to determine how the students’ progress was tracked and if the intervention programs were sustained beyond the grant cycle.
The researcher’s study revealed no significant difference between pre and post grant third grade language arts MCT2 scores; therefore, it was determined that grant dollar amounts and the type of intervention implemented had no effect on student achievement. Due to the lack of specific standards for tracking students’ progress, the researcher was unable to determine the impact of the grant on dyslexic students’ achievement statewide.
The University of Southern Mississippi

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A Dissertation
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of The University of Southern Mississippi
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December 2011
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CHAPTER I
INTRODUCTION TO THE STUDY

Background of the Problem

No other skill taught in school and learned by school children is more important than reading. It is the gateway to all other knowledge. The American Federation of Teachers (2009) stated that if children do not master reading skills in their first three years of school, they will certainly encounter difficulties throughout their academic life. According to Torgesen (2006), schools will never be able to teach all of their children to read if they do not teach the students who have the greatest difficulties to read.

Collins (2001), stressed that in order for good companies to become great, companies must be able to confront the brutal facts. The National Institute for Children’s Health and Human Development (NICHD, 2000), revealed the brutal fact that reading disabilities affect 15-20% of the population and of those 15-20% with a reading disability, 85% are individuals with the specific learning disability of dyslexia. Dr. Reid Lyon (2000), Chairman of the National Academy of Education’s Commission on Reading, revealed in his report to congress that if low-achieving students can be brought up to grade level in the first 3 years of school, their reading performance tends not to revert but to stay at grade level. Therefore, if educators fail to bring students’ reading to grade level within those first few years, the likelihood of their ever catching up is slim even with extra funding and special programs. This report also states that 75% of children who are poor readers in the third grade remain poor readers in the ninth grade (Lyon, 2000).
The Mississippi Department of Education (MDE) implemented the Dyslexia Grant Pilot Program in fiscal year (FY) 1997, and as of FY 2010 has awarded 222 one-year grants to Mississippi school districts (MDE, 2010). Dyslexia is not recognized as a special education disability in Mississippi; therefore, the purpose of the dyslexia grant is to support general education teachers in meeting the needs of general education students identified as having dyslexia (MDE, 2011).

The purpose of this study was to determine the impact of the Mississippi Department of Education’s (MDE) Dyslexia Grant Program on student achievement as measured by the MDE standardized tests, Mississippi Curriculum Test (MCT) and Mississippi Curriculum Test, Second Revision (MCT2). The researcher examined the relationship between third grade MCT (2006) language arts scores and the current MCT2 2007 through 2010 language arts scores for Mississippi school districts that received the dyslexia grant for the school years 2007 through 2010. Pre and post standardized testing data were studied comparing third grade language arts MCT2 test scores before the school districts received the MDE Dyslexia Grant to MCT2 language arts test scores one year after implementing intervention. The study also determined whether grant dollar amounts and the type of intervention implemented had an effect on student achievement. The researcher evaluated the sustainability of the intervention programs and the tracking of student progress.

Theoretical Framework

Dr. Reid Lyon (2000) stated that due to the prevalence of dyslexia and the social consequences of this underserved population of learners, dyslexia is not just an academic issue; it is a public health issue (Lyon, 2000).
The symptoms of dyslexia range from mild to moderate; therefore, many students who demonstrate mild dyslexia may not qualify for special education services; however, dyslexic students do not benefit adequately from regular classroom instruction and may struggle with the condition for a lifetime (Moats & Dakin, 2008). According to Moats and Dakin (2008), treatment for dyslexia is direct, explicit, cumulative, systematic, and multisensory structured language teaching of the critical reading components. The term dyslexia is a derivative from Greek word parts *dys*, meaning difficult, and *lexio*, meaning word; therefore, dyslexia is defined as a learning disability that affects written language. The term dyslexia was first used over 100 years ago in 1887 by Rudolf Berlin to describe individuals who otherwise function well but unexpectedly demonstrate difficulties when learning how to read, write and spell (Clark & Uhry, 2004).

Shaywitz, in *Overcoming Dyslexia* (2003), provides a history of research on the disability dating back to 1676 by physicians, neurologists, pathologists, and ophthalmologists and also discusses present-day studies conducted at Yale University Medical School on individuals with dyslexia using the latest functional magnetic resonance imaging (fMRI). According to Shaywitz (2005), dyslexia has been referred to as the hidden disability; however, through brain imaging research, concrete evidence of the physical reality of the reading disability exists.

According to the International Dyslexia Association (IDA, 2010), dyslexia is described as a prevalent reading disability affecting approximately 15 to 20 % of the population at large. Figures provided by schools to the United States Department of Education reveal only a glimpse of the staggering statistics due to the fact that many dyslexics do not qualify for special education services within their schools (Shaywitz,
According to Dr. Reid Lyon, former chairman of the NICHD, in his 1995 report, approximately 10 million children struggle with reading in the United States (Shaywitz, 2003). Dyslexia is the most common reading disability and is non-discriminatory, affecting learners of all races and cultures (Shaywitz, 2003).

The most recent definition for dyslexia was written in collaboration between the International Dyslexia Association (IDA) and the National Institute of Child Health and Human Development (NICHD) and was published in the 2003 edition of the IDA’s publication Perspectives, and in its journal, Annals of Dyslexia 53.

Dyslexia is a specific learning disability that is neurological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and proven effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced experience that can impede growth of vocabulary and background knowledge. (IDA, 53. 2003, p.1)

Data from the 20-year Connecticut Longitudinal Study conducted at Yale University from 1983 through 1999 revealed that over time the gap between reading ability between good and poor readers remained. Poor readers never catch up with their classmates who are good readers and a dyslexic child will continue to experience reading problems unless a proven, scientifically-based intervention is provided early on (Shaywitz, 2003).
According to the National Academy of Education’s Commission on Reading, research revealed that if low-achieving students can be brought up to grade level in the first 3 years of school, their reading performance tends not to revert but to stay at grade level; therefore, if educators fail to bring students’ reading to grade level within those first few years, the likelihood of their ever catching up is slim, even with extra funding and special programs (Lyon, 2000). Lyon (2000) reported that 75% of children who are poor readers in the third grade remain poor readers in the ninth grade. With the new science available in reading instruction, intervention, and identification of disabilities, educators should be trained to recognize the early warning signs of a reading problem and trained in scientifically sound approaches that meet the unique learning needs of the student (Lyon, 2000).

Some states do not allow the D word to be used, while others such as Texas and Louisiana provide rules, policies, and special funding sources for providing specialized programs for dyslexic students (Moats & Dakin, 2008). The Mississippi Legislature addressed dyslexia through provisions for funding the Mississippi Department of Education’s (MDE) Dyslexia Grant Pilot Program (MDE, 2009).

Individuals with dyslexia require intervention using specialized instruction to meet their unique learning needs (Moats & Dakin, 2008). Dr. Reid Lyon stated in his Report to Congress (2000) that “there is simply no doubt that if children receive effective instruction early and intensively, they can make large gains in general academic achievement” (p. 7). The International Dyslexia Association (2011) documented that students with dyslexia require specialized reading intervention that is multisensory, direct, structured, explicit, systematic, cumulative instruction designed to promote
understanding, memory, recall, and the use of spoken and written language. The instruction must also have multiple components that focus on such areas as phonological skills, phonics and word analysis, spelling, word recognition and fluency, grammar and syntax, text comprehension, writing, and study skills (IDA, 2011).

The primary focus of the No Child Left Behind law was to require schools to provide research-based reading instruction in the early grades in order to have every child reading at grade level by the third grade (Wright’s Law, 2004). According to Moats and Dakin (2008), if children in kindergarten and first grade receive reading instruction that is based on current scientific research, the number of students referred for special services in the later grades will be drastically reduced. In 2000, The National Institute of Child Health and Human Development (NICHD) published The National Reading Panel Report Teaching Children to Read: An Evidence-based Assessment of the Scientific Research Literature on Reading and its Implications for Reading Instruction. The study revealed that direct, systematic instruction in phonemic awareness and phonics is most effective in teaching word reading, especially with young children and children at risk of having dyslexia (Lyon, 2000).

Problem Statement

Due to scientific evidence of the prevalence of dyslexia, and the research proving that provisions of dyslexia intervention in the early grades for dyslexic students is crucial, the Mississippi Legislature enacted an amendment to section 37-23-15, Mississippi Code of 1972. MDE (2009) stated the Law in House Bill 1058 and reported in the Report to the Mississippi Legislature on the Pilot Dyslexia Programs.
To clarify the definition of related disorders, to require the state department of education to select literacy and numeracy screening instruments to be used throughout the state by school districts; to require all school districts to use the screening instruments chosen by the department; to prohibit school districts from using the screening instrument to determine whether or not a student is to be promoted; to authorize the department to receive and expend funds from any source to screen students for literacy and numeracy difficulties; to require the department to annually report on effectiveness of the literacy and numeracy screening instruments; and for related purposes. (p. 3)

MDE (2009) stated that House Bill 1058 resulted in the two key provisions of the law. Section 1 of the Law stated Key Provisions that the State Department of Education shall follow.

- adopt pilot programs under which students enrolled in public schools shall be tested for dyslexia and related disorders based on the request of a parent, student, school nurse, or other personnel who has reason to believe that a need for testing exists
- provide remediation in a multi-sensory, systematic, language based regular education program as determined by the district:
- by January 1, 1997, make recommendations to school boards designated as pilot sites for the delivery of services to students who are identified as dyslexic
- minimum funding funds cannot be used
- school districts are not required to participate
- submit a report to the Regular Session of the Legislature to be submitted to the
Chairman of Education Committees of the Senate and the House of Representatives by November 1 (MDE, 2009, p. 7).

MDE (2009) Section 2 of the Law stated Key Provisions that the State Department of Education shall follow.

- The State Department of Education shall select an early literacy and numeracy assessment instrument/instruments for screening all students in K-3.
- All School districts shall use the screening instrument/instruments; however, school districts will not use them for the purpose of promoting or retaining students.
- In addition to those funds that are appropriated by the legislature, the State department of Education may receive and expend funds from other sources.
- The State Department of Education shall establish a reporting system for school districts in order to monitor the effectiveness of the assessment instrument/instruments.
- The department shall prepare an annual report on the effectiveness of the assessment instrument/instruments that must be submitted to the Senate and House of Representatives on later than November 1 of each year.
- The requirements of this section shall be effective beginning with the 2008-2009 school year and compliance shall be subject to appropriation by the Legislature. (MDE, 2009, p.7).

The Joint Legislative Committee on Performance Evaluation and Expenditure Review submitted a report to the Mississippi Legislature in June 2006. The Compliance and Management Review of the Dyslexia Pilot Programs of the Mississippi Department
of Education stated that since its implementation in 1997, there have been no studies on the effects of the Mississippi Dyslexia Grant on student achievement (Joint Legislative Committee, 2006).

The Joint Legislative Committee (2006) found inadequate evaluation of the dyslexia grant pilot program by the Mississippi Department of Education in at least four areas; a) The MDE did not document its rationale for establishing a cut-off score used in awarding the dyslexia grants; therefore, a reviewer cannot recreate the process used for selecting the recipients. b) The MDE did not ensure that the FY 2005 dyslexia grant recipients measured their programs’ effectiveness against objectives that were stated and a condition of the grant agreement. c) The MDE did not evaluate the effectiveness of the school districts’ programs to determine whether the grant had actually improved student achievement. d) The MDE reimbursed grant expenditures in FY 2005 without enforcing all grant requirements and did not audit the grant recipients to ensure that grant funds were properly spent (Joint Legislative Committee, 2006, pp. 8-19).

The Joint Legislative Committee (2006) addressed the inadequacies and gave the following recommendations; a) The MDE should maintain documentation of the rationale used in determining the grant applicants cut off scores. b) The MDE should ensure that school districts prepare and submit project evaluation reports by the deadline date. The districts should measure the effectiveness of their dyslexia program against the proposed objectives. c) The MDE should analyze the information submitted from the school districts to determine the overall effectiveness of the dyslexia grant programs. At minimum, this analysis should include measurements of the effectiveness against objectives, determine students’ improvement, and determine the most effective teaching
methods. d) The MDE should conduct post audit of funds granted by the department and require documentation to ensure that funds were utilized for their intended purposes (Joint Legislative Committee, 2006, pp. 20-21). The Joint Legislative Committee (2006) recommended that the MDE include the analysis of the dyslexia grant in its annual report to the Mississippi Legislature. The MDE submitted the 2009-2010 Report to the Mississippi Legislature on the Pilot Dyslexia Programs in November 2009.

MDE (2009) reported that 14 school districts received the dyslexia grant monies and pretest and posttest data was gathered from all districts. According to MDE (2009, ), 624 students were identified with the characteristics of dyslexia and 802 were placed in 14 different intervention programs chosen by the school districts. Some programs were implemented within the classroom and all students were counted. Each district selected their assessment tool; therefore, 12 different instruments were used to assess 636 students. Of the 636 assessed, 513 showed growth, 79 tested the same, and 44 did not show growth. MDE (2009) stated that from these results and monitoring of the dyslexia grant districts, it is evident that students are identified, assessed, and provided appropriate instruction as required by the state (p. 1).

Purpose of the Study

The purpose of the study was to determine the impact of the Mississippi Department of Education’s Dyslexia Grant Program on third grade student achievement in language arts for the years 2007-2010. The researcher examined the relationship between the Mississippi Dyslexia Grant Program and third grade language arts MCT 2006 and MCT2 2007-2010 scores for school districts that received the grant for the school years 2007 through 2010. Comparisons were studied between MCT2 scores
before receiving the grant and one year after the school districts received the grant. The study determined if the dollar amount awarded each district and the intervention implemented had an effect on scores. A survey instrument was used to conduct interview questions with school district personnel that determined if progress made by the students who received the intervention was tracked and if the dyslexia interventions were sustained after the initial grant was awarded. The information revealed from this study will be provided to the Mississippi Department of Education to assist in their efforts to provide dyslexia services statewide.

Research Hypotheses

The following research hypotheses guided the quantitative study.

H₀₁: There will be no significant difference between third grade language arts MCT2 scores before the schools received the grant and post-one year after the school district received the MDE Dyslexia Grant.

H₀₂: There will be no significant difference based on the dollar amount of the grant awarded to the school districts on third grade language arts MCT2 scores comparing scores before the grant to post-one year after receiving the grant.

H₀₃: There will be no significant difference based on dyslexia interventions implemented in school districts on third grade language arts MCT2 scores comparing scores before the grant to post-one year after receiving the grant.

Research Questions

The following research questions guided the qualitative study.

1. Were assessments administered and progress tracked of students who received the intervention?
2. Was the intervention program sustained by the school district after the completion of the one-year grant cycle?

3. Was there a significant difference between third grade MCT2 scores pre and post of receiving the grant?

Rationale/Significance of the Study

This study evaluated the effect of the MDE Dyslexia Grant Program on student achievement. The study examined third grade MCT2 language arts scores comparing scores before receiving the grant to post one year receiving the grant funding. The study determined whether the grant dollar amounts and type of intervention implemented affected student achievement. The effects of the funding amount, assessment of student progress, and sustainability of intervention programs by each school district were also examined. It is the intent of the researcher that the study provides information to state leaders and school administrators that will assist them in their evaluation of the effectiveness of the MDE Dyslexia Grant Program on student achievement. The study will also assist state leaders to direct future grants that will facilitate the provisions for fair and adequate services statewide for dyslexic students.

Definitions

*Alphabetic Phonics* - Alphabetic Phonics is a structured, multisensory, Orton-Gillingham based technique used to teach the relationship between sounds and symbols that make up the English language. It emphasizes graphemes, handwriting, sequencing, spelling, verbal expression, reading accuracy and reading comprehension. Research has shown that significant improvements have been made using this technique with children
who have mild to severe learning disabilities. Teacher training requires 200 instructional
hours plus 500 to 800 supervised clinical internship hours (IMSLEC, 2001).

*AIMS web* - AIMS web is a computer based benchmark and progress monitoring
system based on frequent, continuous and direct student assessment. Results are reported
via a website data management system to assist in determining response to intervention
(Pearson, 2010).

*Association Method* - The Association Method is a multisensory technique for
teaching oral and written language skills developed by Mildred McGinnis for children
devoid of speech or language understanding. Teacher training is provided through one
week (40 hours) training sessions at the DuBard School for Language Disorders. The
DuBard School for Language Disorders is accredited through the International
Multisensory Language Educational Council (IMSLEC, 2001).

*Barton Reading and Spelling Program* – The Barton Reading Program is a one-
on-one tutoring system for the improvement of spelling, reading, and writing skills of
students who struggle due to dyslexia or a learning disability. It is Orton-Gillingham
influenced and provides a detailed script for the tutor or parent. Tutor training includes a
step by step DVD, a tutor manual, and lesson plans (Barton Reading, 2011).

*DIBELS* - The Dynamic Indicators of Basic Early Literacy Skills are a set of
procedures and measures for assessing the acquisition of early literacy skills from
kindergarten through sixth grade (Dynamic Measurement Group, 2011).

*Dyslexia* - Dyslexia is a specific learning disability that is neurological in origin.
It is characterized by difficulties with accurate and/or fluent word recognition and by
poor spelling and decoding abilities. These difficulties typically result from a deficit in
the phonological component of language that is often unexpected in relation to other cognitive abilities and proven effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced experience that can impede growth of vocabulary and background knowledge (IDA, 2010).

Dyslexia Intervention - Dyslexia intervention is instruction that is systematic (structured), sequential, and cumulative. Instruction is organized and presented in a way that follows a logical sequential plan, fits the nature of language (alphabetic principle) with no assumption of prior skills or language knowledge, and maximizes student engagement (MDE, 2010).

Lakeshore Phonics - Lakeshore Phonics builds essential phonics skills through hands-on activities. The activities are designed to be used in groups of four (Lakeshore, 2011).

MAP Test - The Measure of Academic Progress is a computerized adaptive test which helps teachers, parents, and administrators improve learning and make decisions to promote students’ academic progress (NWEA, 2011).

Mississippi College Dyslexia Training Program - The MC Dyslexia Therapy program is a two year, graduate level research based program provided to train therapists to work with students who have dyslexia and related disorders. It is a comprehensive, multisensory Orton-Gillingham based (Alphabetic Phonics) training approved by the Mississippi State Board of Education and accredited by the International Multisensory Structured Language Educational Council. Upon completion of the program, an AA Teaching Licensure in Dyslexia Therapy may be issued (Mississippi College, 2011).
Orton – Gillingham Approach - OG is a time tested Orton-Gillingham based multisensory method of reading instruction that provides instruction in phonemic awareness, phonics, vocabulary development, fluency and comprehension strategies. The instruction can be integrated into whole group, small group, or individual instruction. Teacher training is provided in one week workshops (Orton-Gillingham Academy, 2011).

Project Read - Project Read is an alternative approach to teaching reading and written expression concepts and skills to students in special education as well as in mainstream classrooms. Instruction includes a decoding and encoding program, reading comprehension, and written expression components. It has proven to be cost effective when delivered as a preventive program in mainstream classrooms (IMSLEC, 2001).

Linda Mood Bell - LMB is an auditory discrimination in depth program develops phonemic awareness and its application to reading and spelling in a specific progression. Students discover and classify mouth movements that produce speech sounds and associate the sounds with letters, and the sounds within words. The Visualizing and Verbalizing program develops concept imagery through a series of steps beginning expressive language and extends to imaged paragraphs (IMSLEC, 2001).

Mississippi Curriculum Test (MCT) - The MCT is a measure of student achievement in Reading, Language and Mathematics in grades 2-8 based on Mississippi Curriculum administered prior to 2007 (MDE, 2011).

Mississippi Curriculum Test, 2nd ed. (MCT2) - The MCT2 is a measure of student achievement in Language Arts and Mathematics in grades 3-8 based on the 2006 Mississippi Framework-Revised and 2007 Mississippi Framework-Revised.
In addition to being the basis for state accountability in these grades, the MCT2 is designed to meet the federal testing requirements of the No Child Left Behind Act (NCLB), 2001 (MDE, 2009).

*Mississippi Dyslexia Grant Pilot Program* - A competitive grant for the purpose of giving support to general education teachers in meeting the needs of general education students identified as having dyslexia (MDE, 2011)

*Multisensory teaching* – Multisensory teaching incorporates the simultaneous use of two or more sensory pathways (auditory, visual, kinesthetic and tactile) during teacher presentation and student practice (IDA, 2002).

*Readwell*: Readwell is a beginning reading program designed for kindergarten and first through third grade students in need of reading remediation. It was designed to be delivered in a small group situation. It incorporates research-based practices and has been proven to be effective instruction (Cambium Learning, 2007).

*Recipe for Reading* - Recipe for Reading uses Orton-Gillingham methodology in a simple presentation in a single instructional book. It simplifies instruction and is excellent for parents lacking confidence in assisting students with reading instruction (EPS, 2011).

*Texas Scottish Rite Dyslexia Training* - TSR is a comprehensive, two-year program delivered via video that bridges the gap for school districts in which a trained dyslexia therapist is not available. The video series offers Orton-Gillingham based instruction (Alphabetic Phonics) while an on-site facilitator provides attention to the individual needs of the students (Texas Scottish Rite Hospital, 2011).
Delimitations

The following delimitations were imposed on the study:

1. The study was limited to third grade language arts standardized test scores available on the MDE website between the years of 2006 through 2010.

2. The study was limited to the information provided by the Mississippi Department of Education’s Dyslexia Grant Program for the years 2007-2010.

3. There was a change in testing instruments in 2007; therefore the 2006 MCT scores are not comparable to the 2007 MCT2 testing instrument.

Assumptions

The following assumptions have been made in regard to the study.

1. The researcher assumed the MCT (2006) and MCT2 (2007-2010) scores are accurately posted.

2. The researcher assumed the school districts used the MDE Dyslexia Grant funds to purchase the interventions the school district specified on the grant applications.

3. The researcher assumed that the school district implemented the teacher training and materials during the first year of receiving the grant as required in the guidelines of the grant.

4. The researcher assumed that schools implemented dyslexia intervention programs in kindergarten through third grade; therefore, third grade MCT2 language arts scores should reveal higher achievement scores.
Summary

In Chapter I, the researcher stated that the purpose of the study was to examine the effectiveness of the Mississippi Department of Education’s Dyslexia Grant Program on student achievement statewide through examination of the correlation between the Mississippi Dyslexia Grant Program and third grade standardized language arts test scores. Pre-testing and post-testing data were studied comparing third Language Arts assessment scores before the school districts received the MDE Dyslexia Grant to language arts test scores one-year after receiving the grant. The effects of the funding amount, assessment of student progress and sustainability of intervention programs by each school district were also examined. Chapter I revealed background information on dyslexia and provided the definition of dyslexia and appropriate intervention methods. The prevalence of dyslexia was discussed, and the critical need for appropriate early intervention was stated.

It was stated in Chapter I that the study provided information to school administrators that allowed them to review the effectiveness of the MDE Dyslexia Grant Program on student achievement. The study will assist state leaders to direct future grants that will facilitate the provisions for fair and adequate services statewide for dyslexic students.

Chapter II contains a review of the literature that begins with the historical review of the learning disability of dyslexia. The current definition of dyslexia is stated, as well as the primary and secondary effects of the learning disability. Chapter II reveals and discusses the most recent brain and genetic studies conducted on dyslexic individuals and the life stories of several successful dyslexic individuals are presented. In Chapter II,
psycho-educational evaluations and dyslexia intervention programs are discussed, as well as organizations for the accreditation of training programs and the certification of teachers and therapists. The law as it relates to individuals with dyslexia is stated and appropriate accommodation recommendations for dyslexics listed.

In Chapter III, the researcher restates the purpose of the study and the benefits it may provide. The researcher describes the statistical analysis that will be performed, the IRB process, and the process for gathering information. The researcher describes statistical analysis to be performed using the data gathered and possible barriers that could affect the data.
CHAPTER II
REVIEW OF THE LITERATURE

The purpose of the study was to determine the effectiveness of the MDE Dyslexia Grant on achievement of third grade students with dyslexia statewide. The researcher examined the relationship between the Mississippi Dyslexia Grant Program and third grade standardized language arts test scores. Pre-testing and post-testing data were studied comparing third grade Language Arts assessment scores before the school districts received the MDE Dyslexia Grant to language arts test scores one-year after receiving the grant. The study also determined if the funding amount and intervention implemented by each school district had an effect on the standardized test scores. The identification process of students, assessment of student progress, and the sustainability of the intervention programs were also examined by the researcher.

Historical Review of Dyslexia

The term dyslexia has been used since 1887 when describing difficulty with word reading; however, theories of the etiology of dyslexia have evolved over time (Clark & Uhry, 2004). The early studies focused on brain injured adults who lost the ability to read abruptly (Clark & Uhry, 2004). German physician Dr. Johann Schmidt published his study in 1676 of word blindness observed in a 65 year-old man who suffered a stroke. As more studies were conducted on adults losing their ability to read, the term acquired dyslexia was given to the condition (Clark & Uhry, 2004).

In 1896, Scottish ophthalmologist James Hinshelwood was one of the first to document clinical studies on children who in spite of obvious average cognitive ability, failed to learn to read (Shaywitz, 2003). He called the reading disability congenital word
blindness and determined that the disability was due to a brain injury that occurred at birth or a brain defect. He came to the conclusion that the defect was located in the left hemisphere of the brain because visual memory seemed to be affected. Hinshelwood observed that the children demonstrated difficulty with the memory of letters and words; however, their vision was not impaired (Shaywitz, 2003).

In 1917, Hinshelwood documented at least a dozen case studies of children with congenital word blindness. He became convinced that this disorder was more common than others realized and was concerned as to the implications. He was intrigued by the unexpected common characteristic demonstrated by all of the children he studied. They were individuals who were cognitively capable of learning, but oddly unable to learn to read in spite of instruction. Hinshelwood developed more than just a curiosity about the disorder. He was a physician who wanted to make sense of the disorder so that he could help his patients (Shaywitz, 2003).

Hinshelwood (1902) worked tirelessly to publicize his studies through publications and lectures. He believed that the clinical characteristics were so clear that once a physician was aware of the reading disorder, identification and diagnosis would follow. Realizing that treatment must extend to educational institutions, he urged schools to establish procedures for screening children for signs of congenital word blindness and to provide appropriate instruction to the children identified (Shaywitz, 2003).

Dyslexia became increasingly reported by physicians in Holland in 1903, Germany in 1903, and France and South America in 1903. The first documented case of developmental dyslexia (congenital word blindness) came in 1905 by a Cleveland ophthalmologist. Dr. W.E. Bruner’s findings were soon followed by another Denver
physician, Edward Jackson, who described two more cases of Developmental Alexia (Shaywitz, 2003). Six years later, in 1909, a Pittsburgh physician was able to locate 41 reported cases of the disorder (Shaywitz, 2003). McCready (1910) noted that while the majority of cases had been reported by ophthalmologists they had not in a single instance held the ocular conditions responsible for word blindness (Shaywitz, 2003).

Just as Hinshelwood (1902) believed that the disorder was a neurological visual disorder, Dr. Samuel Orton, an American neurologist, also published his theoretical work of visual implications in 1928 (Clark & Uhry, 2004). Orton (1928) believed that right and left brain dominance was poorly established in people with dyslexia and that images were perceived backwards resulting in strephosymbolia, or twisted symbols.

Orton (1937) was one of the first researchers to associate dyslexia with language disorders, and this constitutes the majority of his work. Even though Orton’s theory on visual mirror-image was discredited in the 1970s, Orton’s work, in conjunction with his associate Anna Gillingham, formed the basis for many of the language-based remedial programs that are used today for students with developmental dyslexia (Uhry & Clark, 2004).

In 1961, Dr. Lucious Waites, a pediatric neurologist, joined the faculty at the University of Texas Southwestern Medical Center at Dallas. Dr. Waites began evaluating children for dyslexia even while criticized by colleagues who insisted that dyslexia did not exist. Dr. Waites referred the identified children to a dyslexia training program in Dallas specializing in the language methods learned from the earlier works of Dr. Samuel Orton and Anna Gillingham. This methodology is referred to today as the Orton-Gillingham approach (Waites, 2007). In 1965, Dr. Waites joined the staff at the Texas
Scottish Rite Hospital where he established the Child Development Division that included academic evaluations, specialized language instruction for dyslexic students, and a dyslexia training program for teachers (Waites, 2007).

Dyslexia Defined

In 1968, Dr. Waites and the Texas Scottish Rite Hospital hosted the World Federation of Neurology. This group of physicians from all over the world developed the first written definition of dyslexia (IDA, 2003). Waites (2000) stated that “the definition specific developmental dyslexia is a disorder manifested by difficulty in learning to read despite conventional instruction, adequate intelligence and socio-cultural opportunity. It is dependent upon fundamental cognitive disabilities which are frequently of constitutional disorder” (p. 9). This early definition laid the groundwork for the identification and appropriate instruction for students with dyslexia (Waites, 2007).

In 2003, the definition of dyslexia was updated by the International Dyslexia Association and published in the *Annals of Dyslexia, 2003, Vol. 53.*

Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge. (IDA, 2003, p. 1)
Dyslexia and Language Components

The phonological component is the sound system of language and phonological processing abilities are critical to a student learning to read. The term phonological processing is a general term referring to oral language process abilities in phoneme awareness, phonological memory and automatic rapid naming (RAN). The vital role that phonological awareness plays is the growth of a student’s reading skills and the determination of a reading disability is one of the most important discoveries made in the past 20 years of reading research (Torgesen, 2000). According to the International Dyslexia Association (IDA), phonological awareness is a sensitivity to, or explicit awareness of, the phonological structure of words in one’s own language. If an individual’s phonological awareness is fully developed, the ability to identify, think about, and manipulate individual sounds within words comes easily (Torgesen, 2000).

Phonological awareness includes a student’s ability to recognize rhyming sounds, alliterations, auditory segment words into individual sounds (blending), isolate sounds within words (segmenting) and the ability to tell how many sounds are in individual words and moving the sounds around (manipulation) (TSRH, 2009). Students with phonemic awareness understand that words can be divided into sounds that are smaller than syllables. Phonemic awareness is a skill that grows as students become more exposed to individual phonemes. Repetition and pre-reading practice with the phonemes is partially responsible for progress on measures of phonemic awareness and future reading success (Torgesen, 2000).

Phonological memory is the ability to temporarily store bits of verbal information. It is the ability to remember a series of numbers or words that are presented orally and
remember the correct sounds in words allowing a student to read and spell longer words with multiple syllables (Shaytz, 2003). Automatic rapid naming requires a student to process language quickly. Students with this ability are quickly able to name colors, numbers, letters, and objects. As they become older, they are able to quickly name common words and pull names from memory (TSRH, 2009). Deficient development of phonological awareness is an important diagnostic symptom for two reasons. First, when compared to normal readers, children with dyslexia are consistently more impaired in their phonological awareness abilities than in other ability. Secondly, measures of phonological awareness administered to kindergarten children strongly predict their rate of growth in word reading (Shaywitz, 2003).

Research at the University of Florida revealed the importance of phonological awareness during the first few years of school (Shaywitz, 2003). The research revealed that first graders scoring in the lowest 20% on a phonological test were reading at a low level of 2.6 when they reached the fifth grade. In contrast, first graders scoring higher on the phonological test were reading at 5.9 grade level or higher in the fifth grade (Shaywitz, 2003). Pre-school linguistic experience and genetics are the two factors responsible for the variation among entering first grade children in phonological awareness (Torgesen, 2000). The strong predictor of phonological awareness tests in kindergarten is necessary for the early identification of children with dyslexia in order to provide appropriate intervention before reading instruction begins (Torgesen, 2000).

Acquiring alphabet knowledge is essential for reading success. Knowledge of letters shapes, names, and the sounds they represent provide children with a solid foundation of the alphabetic principle required for learning to read (Birsch, 2005). The
National Reading Panel’s (NRP) meta-analysis stressed that letter knowledge enhances both phonemic awareness and systematic phonics instruction for reading and spelling (Birsch, 2005). Because of a deficit in phonological memory and automatic rapid naming, many children with dyslexia struggle with sequencing the alphabet and rapidly naming letters; therefore, they require much practice and repetition. Adams (1990) cited that rapid identification of upper and lower case letters of the alphabet coupled with phonemic awareness is a predictor of early reading achievement.

Torgesen (1998) recommended that screening for dyslexia begin in the second semester of kindergarten to allow children an opportunity to be exposed to the skills that will be evaluated. Torgesen (1998) recommended that two tests be given: a) test of knowledge of letter names for kindergarten children; a test of letter sounds for first grade children, and b) measure of phonemic awareness (Birsch, 2005). Reading is a complex process involving decoding, which enables a reader to translate printed symbols into words. It also involves comprehension, which enables the reader to receive meaning from the print (Birsch, 2005). Individuals with dyslexia do not have strong decoding abilities and often guess at the words. Their memory for words is weak, so they forget what they have just read (Moats, 1999). According to Moats (1999), children with dyslexia should be taught to read with a systematic, explicit, code based approach; however, even with well- designed language instruction, children will vary in their rate of learning.

Orthography is a word with Greek roots, ortho meaning correct and graph meaning write; therefore, orthography means correctly using written symbols. Spelling serves as a foundation for reading and provides a means of communication (Birsch,
There are frequent, reliable patterns and spelling rules that can be taught equipping students with a system for managing the orthography of English. Dyslexic children require a multisensory, direct and explicit approach to spelling instruction (Birsch, 2005). However, even when reading has been remediated successfully, spelling tends to continue to be a weakness for individuals with dyslexia (Clark & Uhry, 2004). According to Uta Frith’s model of reading and spelling development, children with deficits in phonemic awareness struggle during the alphabetic stage to acquire a phonological representation of spoken words and continue to struggle in making the transition to recognizing and remembering letters to spell at the orthographic stage (Clark & Uhry, 2004).

Primary Effects of Dyslexia

According to Dr. Sally Shaywitz (2010) at the Yale Center for Dyslexia and Creativity, the primary affects of dyslexia can be observed as early as the pre-school years and on into adult life. Clues of dyslexia involve spoken and written language from early childhood to adult. (Shaywitz, 2003, pp. 122-124)

- Trouble learning common nursery rhymes
- Persist in using baby talk and mispronounce words
- Difficulty learning and remembering letter names
- Doesn’t recognize rhyming patterns like cat, bat, rat
- Fails to recognize or remember letters in his/her own name
- Family history of reading difficulties

Kindergarten and first grade signs of dyslexia include the following clues.
• Reading errors that show no connection to the sounds of the letters on the page; may says puppy instead of dog
• Doesn’t understand that words come apart
• Complains about reading being difficult; avoids reading
• May have speech problems
• Difficulty reading single words
• Difficulty learning the connection between letters and sounds
• Confusing small words, such as *at* and *to*
• Reversal of letters, such as *d* for *b*; *w* for *m*
• Reversal of words, such as *tip* for *pit*
• Difficulty remembering simple sequences, such as counting to 20, days of the week, reciting the alphabet.
• Frequently uses words like *stuff* and *thingy* to name an object
• Difficulty with right/left, up/down, front/back

  Second and third graders with dyslexia demonstrate problems in speaking and writing.
  
• Labored oral reading
• Trouble reading unfamiliar words; often makes wild guesses
• Poor reading comprehension
• Misspelling of words
• May have poor handwriting
• Difficulties writing sentences and paragraphs
• Does not enjoy reading
• Pauses when speaking and consistently says “ummm”
• Seems to need extra time to respond to questions
• Homework takes significantly longer to finish than peers
• Has trouble finishing tests on time
• Poor memory of dates, names, numbers
• May be developing low self-esteem

Adults with dyslexia demonstrate many of the following characteristics.
• Hides reading problems/Rarely reads for pleasure
• Spells poorly and relies on others for spelling corrections
• Avoids writing and reading aloud
• Difficulty planning, organizing, and managing time, materials, and tasks
• Struggles to retrieve words when speaking; pronounces words incorrectly
• May have a low self esteem (Shaywitz, 2003, pp. 122-124)

Secondary Effects of Dyslexia

The emotional affects of dyslexia on children was documented as early as the turn of the century. Dr. Samuel Orton described the emotional aspects of dyslexia in the early twentieth century. According to Orton’s research (1937), the majority of dyslexic preschoolers were happy and well adjusted and their emotional problems begin to develop when early reading instruction does not meet their learning style. Frustration mounts as classmates surpass the dyslexic students in reading skills (Ryan, 2004).

Ryan (2004) stated that anxiety is the most frequent emotional symptom reported by adults with dyslexia. They become fearful due to their constant frustration and confusion in school. Because they anticipate failure, entering a new situation becomes
anxiety provoking (Ryan, 2004). Anxiety causes human beings to avoid whatever frightens them, and many teachers and parents misinterpret this behavior as laziness (Ryan, 2004). According to Ryan (2004) frustration with school or social situations can produce feelings of anger in the dyslexic child. Often, the child holds back his or her anger at school to the point of being passive, but once in a safe environment, the child is most likely to vent this anger towards the mother (Ryan, 2004).

Due to feelings of frustration and anxiety, the dyslexic’s self-esteem is extremely vulnerable (Ryan, 2004). According to Erik Erikson (1963), during the first years of school, every child must resolve the conflicts between a positive self-image and feelings of inferiority. If children succeed in school, they will develop positive feelings about themselves and believe that they can succeed in life. If children meet failure and frustration, they learn that they are inferior to others and that their effort makes little difference. Instead of feeling powerful and productive, they learn that their environment controls them. Ryan (2004) suggested that these feelings of inferiority develop by the age of 10. After this age, it becomes difficult to help a child develop a positive self-image.

Depression is also a frequent complication for individuals with dyslexia. Due to a low self-esteem, dyslexics fear turning their anger outwardly, so instead will turn their anger inward towards themselves. Children and adults who are depressed have a negative self-image, tend to view the world negatively and have trouble imagining anything positive about the future (Ryan, 2004). The National Institute of Child Health and Human Services (NICHS) considered reading failure to be both an educational and public health problem. According to the NICHS (2000), approximately 27% of these
children drop out of high school before graduation and as they move out into society, they are more likely than their peers to interact with the justice system and less likely to obtain financially rewarding employment.

**Dyslexia and the Criminal Justice System**

According to Vail (1990) undiagnosed dyslexics are victims of actual or metaphorical suicide who despise themselves for demonstrating symptoms of a condition that is misunderstood by them and others. Undiagnosed dyslexics are found in mental health clinics, jails and prisons (Vail, 1990). Macdonald (2010) conducted a study in the United Kingdom that examined the relationship between dyslexia, social exclusion, and crime. His study established links between undiagnosed dyslexia, restricted literacy levels and criminal behaviors and revealed that 40% of the prison population located in the UK demonstrates dyslexic tendencies (Macdonald, 2010). Macdonald (2010) indicated that undiagnosed dyslexic offenders are three times overrepresented in the criminal justice system (Macdonald, 2010). The study dismissed the bio-medical approach to crime and determined that criminal behavior is of sociological context. MacDonald (2010) stated that undiagnosed dyslexia plays a significant role in behaviors that lead to criminal conduct. He concluded that improving support for dyslexics early on reduces criminal offences (MacDonald, 2010).

**Dyslexia and Brain Studies**

For many years, scientists have focused on areas of the brain that are important in reading. As early as 1892, French neurologist Jules Dejerine determined that the parieto-temporal region was critical for reading (Shaywitz, 2003). In the 1970s, a hypothesis emerged stating that dyslexia stems from a deficit in phonological processing. Many
studies were then conducted and key studies revealed the importance of phonological awareness in determining reading success (Torgesen, 2000). According to Hudson, High, and Otaiba (2007), the brain can be divided down the middle into two parts, a left and right hemisphere. Speech, language processing and reading takes place in the left hemisphere of the brain. The three left hemisphere lobes are described in the following information (Shaywitz, 2003, pp. 78-79).

- The frontal lobe is the largest and responsible for controlling speech, reasoning, planning, regulating emotions and consciousness. The Broca’s area is located in the frontal lobe and responsible for speech production, organization and manipulation of language. Areas of the frontal lobe are also critical for silent reading proficiency.

- The parietal lobe is located towards the back of the brain. The parietal lobe controls sensory perceptions and links the memory of spoken and written language to provide meaning to what we hear and read.

- The occipital lobe is found at the back of the head and where the primary visual cortex is located. The visual cortex is important in the identification of letters.

- The temporal lobe is located parallel with the ears in the lower part of the brain. Verbal memory is involved in the temporal lobe. Wernicke’s area known to be important in understanding language and is critical in language processing and reading (Shaywitz, 2003, pp. 78-79).

Converging evidence suggests that two other systems located between the lobes are important for reading. The left parietotemporal system appears to be involved in word analysis (Shaywitz, 2003). This area is also important for comprehending written
and spoken language. The left occipital-temporal area system seems to be involved in automatic, rapid access to whole words and is critical for fluent reading (Shaywitz, 2003).

The brain is made of gray matter and white matter. Gray matter is the visible part of the brain, mostly composed of nerve cells that are used for processing information. The white matter is located deep within the brain and is composed of connective fibers covered in myelin designed to facilitate communication between the nerves. It is responsible for transferring information around the brain (Deutsch, et al., 2005). Studies reveal structural differences in the brains of dyslexics and non-dyslexics. According to Booth and Burman (2001), dyslexics have less gray matter in the left parietal-temporal area than non-dyslexic people. Having less gray matter in this area of the brain could lead to problems with phonological awareness.

Deutsch et al. (2005) stated that many people with dyslexia also have less white matter in the parietal-temporal area than average readers. This is important because more white matter is correlated with increased reading skills. In 1973, using computed tomography (CT), a computerized series of X-rays that build a three dimensional image of the brain, scientist were able to observe the brain for the first time. Using CT, and then later magnetic resonance imaging (MRI), neuroscientists could see the smallest details of brain anatomy. The CT and MRI revealed the structure of the brain; however, in the early 1980s, functional brain imaging became possible and scientists were able to observe the brain at work as a person read, spoke, thought and imagined (Shaywitz, 2003).

According to Shaywitz (2003), Functional Magnetic Resonance Imaging (fMRI) is based on oxygenated hemoglobin. The magnetic properties of the hemoglobin
molecule change depending on the amount of oxygen bound to it. Blood with high oxygen concentration produces a stronger magnetic signal than blood with less oxygen; therefore, as a person carries out a specific cognitive task, neurons in sites located throughout the brain become activated, the oxygenated blood flow to these regions increases, and the fMRI apparatus picks up its stronger magnetic signal, providing an image as the brain functions.

The Yale University study by Drs. Sally and Bennett Shaywitz currently presents the largest, best specified current findings in fMRI studies. Shaywitz (2003) studied children with and without reading disabilities on a variety of magnetic tasks and non-magnetic tasks. Brain activation comparisons were made between the two groups of children when given tasks that required the processes of reading. The children were asked to identify the names of sounds and letters, sound out nonsense words, and compare meanings of real words.

It was observed that the children without reading disabilities showed more activation in all areas known to be important for reading than the children with reading disabilities. Shaywitz (2003) also found that children who were good at decoding showed more activation in the areas known as important for reading in the left hemisphere and less in the right hemisphere than the children with reading disabilities.

Shaywitz (2003) suggested that for children with reading disabilities, the disruption in the rear reading systems located in the left hemisphere critical for skilled, fluent reading causes children to compensate by using other, less efficient systems in the right hemisphere. This leads to the conclusion that there is a failure of the left hemisphere rear brain systems to function properly during reading. In addition, many
people with dyslexia show greater activation in the lower frontal areas of the brain leading researchers to the conclusion that neural systems in the frontal regions compensate for the disruption in the posterior area (Shaywitz, 2003). In a 2004 brain imaging study conducted at Yale University, it was found that when students with dyslexia learned to read through direct systematic reading intervention, the critical left hemisphere areas of the brain became active (Shaywitz, Shaywitz, Blackmon, Pugh, Fulbright, Skudlarski, 2004).

Genetic Studies of Dyslexia

In the first study of its type, at the Wellcome Trust Centre for Human Genetics, University of Oxford, Oxford, United Kingdom, Dennis, Paracchini, Scerri, and Prokunina-Disson, (2009) characterized gene (KIAA0319) to identify variant(s) that might affect gene expression and contribute to the disorder of dyslexia. They discovered a variant residing outside of the protein-coding region of KIAA0319 that reduces expression of the gene. This variant creates a binding site for the transcription factor OCT-1. Previous studies have indicated that OCT-1 binding to a specific DNA sequence upstream of a gene can reduce the expression of that gene. The reduced KIAA0319 expression could lead to improper development of regions of the brain that are involved in reading ability (Dennis et al., 2009). Previous studies on families estimated a high heritability of dyslexia, reporting 40% in siblings of affected individuals (Finucci, Guthrie, Childs, Abbey, & Childs, 1976). Twin studies (Shaywitz, 2003) have shown a concordance rate of 68% in monozygotic (identical) twins compared to 38% in dizygotic (fraternal) twins. According to Shaywitz (2003), if dyslexia was entirely genetic, then both identical twin studies would reveal reading problems. If a child carries a gene that
predisposes him or her to dyslexia, it simply means he or she is at higher risk. In addition to the child’s genetic predisposition, environmental factors, such as being read to at home, playing rhyming games and most importantly, the effectiveness of reading instruction, plays a role in determining reading success.

Successful Dyslexics

Dyslexia is a specific learning disability affecting individuals of average to higher intelligence (IDA, 2010). It is a life-long condition (IDA, 2010) affecting over 40 million American children and adults (Davis, 2010) or 1 in 5 individuals (Shaywitz, 2002). Dyslexia can be distinguished from other types of reading disabilities by the cognitive ability of the individual (Moats & Dakin, 2008). Too often, dyslexic children are subject to ridicule during their formative years that leads to self-recrimination and depression, with many drifting into drug/alcohol abuse and even crime. One may wonder just how many potential creative geniuses have been stigmatized into dead-end occupations for their entire lives (Davis, 2010).

According to Moats and Dakin (2008), dyslexia affects people across a wide range of intelligence and socioeconomic levels. Davis (2010) stated that successful dyslexics learn to sidestep their barriers, allowing them to accomplish their dreams and desires. Dyslexia has even been found to be a catalyst for success, forcing some individuals to develop their hidden talents and gifts. In spite of their struggles with written language, they are able to become effective problem solvers and find ways to achieve success in life (Moats & Dakin, 2008). Perseverance is often their most crucial life-saving characteristic; however, through encouragement from parents and teachers, miracles can be accomplished by dyslexic individuals.
People with dyslexia have made tremendous contributions to society. Contributions come from individuals who became famous entertainers, designers, architects, writers, athletes, physicians, scientists, political and business leaders (Davis, 2010). Pablo Picasso was a famous, but controversial, artist. He is described as having difficulty learning to read and was labeled dyslexic. Dyslexia troubled him for his entire life; however, he developed a unique sense of beauty and style to his artistic abilities. He painted objects the way he perceived them, out of order, backwards, or upside down. He is famous for taking art to a new level (Davis, 2010). Thomas Edison, a brilliant scientist and inventor, was dismissed from school at the age of 12 because his teachers thought he was incapable of learning. He was thought to be terrible in math, unable to focus, and had great difficulty with speech and words. In spite of his poor academic performance, it was obvious that he was extremely intelligent. Through hard work and perseverance, Edison patented 1,093 inventions over the course of his career that laid the foundation for modern society (Davis, 2010).

As a boy, Nolan Ryan had difficulties learning to read. He grew up to become a Famous Hall-of-Fame pitcher and contributed to the win of the New York Mets in their 1969 World Series victory. Ryan struggled with dyslexia throughout his life (IDA, 2007). Writer John Irving was regarded as lazy by most of his teachers at Phillip Exeter Academy in New England. It was not until his son was diagnosed with dyslexia that he realized the reason for his struggles with reading. Through the high school wrestling coach, Irving gained confidence and published his first book at the age of 26 (Shaywitz, 2003). Jay Leno has worked hard all of his life but did not do well in school. Leno was told by the admissions officer at Emerson College in Boston that he was not a good
candidate for the school; however, he was so determined to attend that he sat outside the admission officer’s office 12 hours a day five days a week until he was accepted into the University. Leno credits his dyslexia for helping him develop the perseverance needed to succeed in comedy and life (Davis, 2010). Other famous dyslexics include John F. Kennedy, Tommy Hilfiger, General George Patton, Charles Schwab, Winston Churchill, and Henry Ford (Davis, 2010).

Evaluations for Dyslexia

According to Dr. Jane Fell Greene, a literacy expert whose credentials include clinical diagnostician, psycholinguistics and clinical practice, there is no single test that will provide a diagnosis of dyslexia, but rather a battery of tests must be administered and a report of the family and individual history reviewed (Greene & Moats, 2000). Testing should be administered by qualified professionals with training in several disciplines including psychology, reading, language education and speech language pathology (Greene & Moats, 2000). The diagnostician should have a strong background in test construction, statistical analysis, and dyslexia in order to interpret the test results and analyze the child’s family and individual history (Greene & Moats, 2000).

Student Intervention Programs

Multisensory Structured Language methods have helped students from preschool to adults who struggle with the specific learning disability of dyslexia to achieve with measurable progress in reading, writing and spelling (IMSLEC, 2001). Alphabetic, phonetic, structured, linguistic, multisensory, individualized and intensive therapy methods are successful because components and procedures are based on neurological research initially conducted by Dr. Samuel Orton. Orton-Gillingham-based methods
were developed with a scientific base of understanding the differences of individuals with dyslexia and the unique learning needs of some 15-20% of the population; therefore, Multisensory Structured Language Methods are a specific prescription for individuals with dyslexia (IMSLEC, 2001). Although the basic Orton-Gillingham method is intact, there are many variations of the contributions of Dr. Samuel Orton and Anna Gillingham (IMSLEC, 2001).

Accreditation of Dyslexia Training Programs

The International Multisensory Structured Language Education Council (IMSLEC) accredits quality Multisensory Structured Language Education (MSLE) training courses. The training programs may be independent postsecondary training programs or may exist within already accredited institutions, such as colleges, universities, or medical entities.

IMSLEC promotes and ensures quality Multisensory Structured Language Education (MSLE) training for teachers and therapists of individuals with dyslexia and related disorders. IMSLEC’s accreditation process supports essential standards and criteria for academic and practicum work that are crucial to the successful training of dyslexia teachers, therapists and other specialists (IMSLEC, 2010). MSLE instruction includes the approaches which incorporate components demonstrated to assist individuals with dyslexia and related disorders to gain literacy skills (IMSLEC, 2010).

In order to meet the criteria for becoming an accredited program through the International Multisensory Structured Language Educational Council (IMSLEC, 2010), MSLE programs must contain specific content and principles of instruction. MSLE instructional programs must contain content that includes phonology and phonological
awareness, sound-symbol association, syllable instruction, morphology, syntax, and semantics (IMSLEC, 2010). MSLE instructional programs must also include principles of instruction that are simultaneous multisensory, systematic and cumulative, direct instruction, diagnostic teaching, synthetic and analytic instruction (IMSLEC, 2010).

**Professional Dyslexia Training Programs**

Over 70 years of research is documented in the Clinical Studies of Multisensory Structured Language Education on the methods written by educators who studied directly under Dr. Orton (Pickering & McIntyre, 2001). These scientific research-based methods are The Slingerland Method, The Spalding Method, Project Read, Alphabetic Phonics, The Herman Method and The Wilson Method (Pickering & McIntyre, 2001). The duration of teacher training for each one may vary (IMSLEC, 2010).

The Mississippi College Dyslexia Therapy program has adopted Alphabetic Phonics as its core Orton-Gillingham based-training method. This Mississippi training program is a 2 year graduate level course of study leading to a Master’s of Education degree in Dyslexia Therapy. The Master of Education program in Dyslexia Therapy at Mississippi College is approved by the State Board of Education as a graduate degree meeting all requirements for an advanced degree by elementary and secondary licensed teachers (Mississippi College, 2005).

The State Board of Education has established licensure requirements for holding an AA Teaching License in Dyslexia Therapy. Requirements include holding a valid standard A teaching license (valid for 5 years) and completion of a master's degree in dyslexia therapy. The AA License may be added to an existing A License for both elementary and secondary level teachers. Completion requires a two year commitment.
by the educator for therapy training, plus an additional 820 supervised clinical internship hours (MDE, 2010). The Mississippi Dyslexia Training program is accredited through the International Multisensory Structured Language Educational Council IMSLEC at the therapist level. Upon completion, the therapist is eligible to sit for the national Academic Language Therapist Association Exam (ATLA, 2010).

There are several Orton-Gillingham based methods available to educators not seeking a master’s degree in dyslexia therapy and that require less training time. The first level of The Slingerland Method teacher training program is traditionally offered as a four week summer session and includes a practicum with students. It can also be adapted into a four to six week in-year course. The second level of training is traditionally offered as a four week period of intensive study with a practicum. The third level of training is a four week course designed for a limited number of participants wishing to become staff teachers in Slingerland training courses. Slingerland is IMSLEC accredited at the teacher training level (Slingerland, 2010). The Spalding Method is an Orton-Gillingham-based curriculum that offers two 45 hour training course sessions. The text is titled *The Writing Road to Reading* and it is IMSLEC accredited at the teacher training level (Spalding, 2010).

Project Read provides in-service in one of the Project Read curriculum strands for a district campus. Each day of the in-service training, the consultant demonstrates a 40 minute teaching lesson in three of the grade area classrooms during the regular school hours. At the end of the school day, the teachers attend a three hour in-service session on the curriculum and program methodology. Project Read also provides training on DVDs for teachers that accompany some teacher materials. Project Read is IMSLEC accredited
at the teacher training level (Language Circle, 2010). The Herman Method is offered by Sopris West as an on-line course. The Herman Method is accredited through IMSLEC at the teacher training level (Sopris West, 2010). The Wilson Method offers one to six graduate hours in an on-line course with the opportunity to earn six additional credits through a practicum. The Wilson Method is IMSLEC accredited at the teacher training level (Wilson, 2010).

Academic Language Therapy Association

The Academic Language Therapy Association (ALTA) is a professional organization for the purpose of establishing, maintaining and promoting standards of education, practice and professional conduct for Certified Academic Language Therapists. Academic Language Therapy is an educational, structured, comprehensive, phonetic, multisensory approach for the remediation of dyslexia and/or written-language disorders (ALTA, 2010). The name Academic Language Therapy Association represents and identifies the profession and the professionals who are its members. "Academic Language" denotes that services offered to clients are educational and emphasize reading, spelling and writing. There are over 800 ALTA members in 34 states and England. Many members hold advanced degrees and many are also credentialed as teachers, diagnosticians, speech-language pathologists or professionals in related fields (ALTA, 2010). The Academic Language Therapy Association has clear standards for certification/membership and a national Registration Examination. ALTA has established minimum standards for academic language therapy programs, academic language therapy centers, qualified instructors and standards for accreditation of educational programs in academic language therapy (ALTA, 2010). It is the intent of the Academic Language
Therapy Association that Certified Academic Language Therapists be universally recognized as highly qualified specialists who have met uniform standards of professional post-baccalaureate education and that the credentials conferred by ALTA will assure the public and other professionals of the competence, integrity and professionalism of Certified Academic Language Therapists (ALTA, 2010).

International Dyslexia Association

The International Dyslexia Association (IDA) is an international organization that concerns itself with the complex issues of dyslexia. The IDA promotes the idea that all individuals have the right to achieve their potential, that individual learning abilities can be strengthened, and that social, educational and cultural barriers to language acquisition and use must be removed (IDA, 2010). The IDA actively promotes effective teaching approaches and related clinical educational intervention strategies for people with dyslexia. The IDA supports and encourages interdisciplinary research and facilitates in the exploration of the causes and early identification of dyslexia. The IDA is committed to the responsible and wide dissemination of research-based knowledge (IDA, 2010).

The IDA (2010) recently announced a document entitled Knowledge and Practice Standards for Teachers of Reading. The document serves as a guide in endorsing programs that prepare teachers of reading and/or programs that specialize in preparing teachers to work with students who have reading difficulties and disabilities. One of IDA’s long-term goals is to inform the public regarding the knowledge base required for skilled reading instruction. Another is to define the specific teaching capabilities that should characterize any person responsible for teaching students with dyslexia and related reading difficulties and to identify programs that meet the standards (IDA, 2010).
Leadership and Teacher Effectiveness

According to the IDA, quality teacher training is imperative to ensure that the appropriate intervention is presented to the dyslexic student effectively. According to Reeves (2006), student achievement improves when it is not based on luck, but rather on leading. In other words, teachers that know the strategies that should be used to reach desired outcomes must be the model followed. Schools that rely on luck will eventually be exposed. One of the most fundamental findings in Reeves’s (2004) 90/90/90 study was that teaching quality was a more dominant factor than student demographics in relation to student achievement. The principals in the 90/90/90 Schools made impressive achievement gains by strategically assigning teachers in their areas of strength and education (Reeves, 2004).

Schmoker (2006) stated that a school administrator’s role in assuring that students are receiving effective instruction is critical. An administrator’s presence in a teacher’s classroom should become an everyday occurrence, rather than a novelty. Administrators’ presence in the classroom should be incorporated into an ongoing dialog that the teachers and administrators engage in for effective instructional practices. If the concern is that teachers be treated as professionals, then there should be no fear of their practices being the subject of critique and change to meet the students’ learning needs. As professionals, teachers should embrace all opportunities for improvement in teacher instruction (Schmoker, 2006).

Model of Success for Disadvantaged Students

Reeves (2004) provided characteristics that are applicable to instruction for dyslexic students in the case study The 90/90/90 Schools. Reeves’s research is based on
a case study that provides data from research conducted from 1995 through 1999 by the Center of Performance Assessment on 90/90/90 Schools.

There were five characteristics common in all successful 90/90/90 Schools studied. One characteristic was the focus on academic achievement. Achievement was visually demonstrated in the schools using charts and graphs with student work proudly displayed on tables. All schools made clear curriculum choices leading to more time spent on reading, writing, and math with less time spent on the other subjects. Another characteristic shared by all the schools was the frequent assessment of progress allowing many opportunities for students to improve. There was also a strong emphasis on nonfiction writing in each school with teachers using a single scoring rubric as an evaluation and assessment scoring guide. Finally, the collaboration among teachers to establish a common guide for criteria to score student work was practiced in all of the 90/90/90 Schools (Reeves, 2004).

**Mississippi Legislation on Dyslexia**

Due to the overwhelming scientific evidence of the prevalence of dyslexia, and the scientific research proving that provisions of dyslexia intervention in the early grades to meet the needs of dyslexic students is crucial, the Mississippi Legislature enacted an amendment to section 37-23-15, Mississippi Code of 1972. The Law was stated by MDE (2009) in House Bill 1058 and reported in the Report to the Mississippi Legislature on the Pilot Dyslexia Programs.

To clarify the definite on of related disorders, to require the state department of education to select literacy and numeracy screening instruments to be used throughout the state by school districts; to require all school districts to use the
screening instruments chosen by the department; to prohibit school districts from using the screening instrument to determine whether or not a student is to be promoted; to authorize the department to receive and expend funds from any source to screen students for literacy and numeracy difficulties; to require the department to annually report on effectiveness of the literacy and numeracy screening instruments; and for related purposes. (p. 3)

MDE (2009) stated that House Bill 1058 resulted in the two key provisions of the law. Section 1 of the Law stated Key Provisions that the State Department of Education shall follow.

- adopt pilot programs under which students enrolled in public schools shall be tested for dyslexia and related disorders based on the request of a parent, student, school nurse, or other personnel who has reason to believe that a need for testing exists
- provide remediation in a multi-sensory, systematic, language based regular education program as determined by the district:
- by January 1, 1997, make recommendations to school boards designated as pilot sites for the delivery of services to students who are identified as dyslexic
- minimum funding funds cannot be used
- school districts are not required to participate
- submit a report to the Regular Session of the Legislature to be submitted to the Chairman of Education Committees of the Senate and the House of Representatives by November 1 (MDE, 2009, p. 7).
MDE (2009) stated that Section 2 of the Law stated Key Provisions that the State Department of Education shall follow.

- The State Department of Education shall select an early literacy and numeracy assessment instrument/instruments for screening all students in K-3.

- All School districts shall use the screening instrument/instruments; however, school districts will not use them for the purpose of promoting or retaining students.

- In addition to those funds that are appropriated by the legislature, the State department of Education may receive and expend funds from other sources.

- The State Department of Education shall establish a reporting system for school districts in order to monitor the effectiveness of the assessment instrument/instruments.

- The department shall prepare an annual report on the effectiveness of the assessment instrument/instruments that must be submitted to the Senate and House of Representatives on later than November 1 of each year.

- The requirements of this section shall be effective beginning with the 2008-2009 school year and compliance shall be subject to appropriation by the Legislature.

(MDE, 2009, p. 7)

Mississippi Department of Education’s Dyslexia Grant Pilot Program

According to the MDE (2011), the purpose of the dyslexia grant is to support regular education teachers in meeting the needs of regular education students who have been identified as having dyslexia and other related disorders. The competitive one-year grant is awarded to local school districts who have not received the grant in the past 3
years. The maximum award is $49,000.00 (MDE, 2011). In order to receive funding, MDE, (2011) states that school districts must adhere to a list of required activities that include the selection of personnel to be the dyslexia contact person. The contact person will make a two year commitment to the grant process and agree to the following requirements.

- Receive training in dyslexia with MDE initial meeting
- Receive training in multisensory and language-based programs designed for dyslexia
- Oversee the implementation of the dyslexia plan outlined in the grant proposal
- Provide data on students progress through pretest and posttest assessments throughout the year
- Expend grant funds in their entirety to the approved proposed budget

MDE (2011) states the yearly requests for proposals are available to the school districts is in February with the deadline for submission is in March. The proposals are evaluated on a maximum 100 point system based upon the following criteria:

- Identification of students (15 points)
- Project Objectives (15 points)
- Multisensory, Systematic, Explicit, Language-Based Reading Program (20 points)
- Evaluation (10 points)
- Professional Development Plan (20 points)
- Replicability and Sustainability (10 points)
- Budget (10 points)
Compliance and Management Review

The Joint Legislative Committee on Performance Evaluation and Expenditure Review (PEER) submitted a report to the Mississippi Legislature in June 2006 titled Compliance and Management Review of the Dyslexia Pilot Programs of the Mississippi Department of Education. The report stated that since its implementation in 1997, there have been no studies on the effects of the Mississippi Dyslexia Grant on student achievement (PEER, 2006). PEER (2006, p. 8) found inadequate evaluation of the dyslexia grant pilot program by the Mississippi Department of Education in at least four areas; a) The MDE did not document its rationale for establishing a cut-off score used in awarding the dyslexia grants; therefore, a reviewer cannot recreate the process used for selecting the recipients. b) The MDE did not ensure that the FY 2005 dyslexia grant recipients measured their programs’ effectiveness against objectives that were stated and a condition of the grant agreement. c) The MDE did not evaluate the effectiveness of the school districts’ programs to determine whether the grant had actually improved student achievement. d) The MDE reimbursed grant expenditures in FY 2005 without enforcing all grant requirements and did not audit the grant recipients to ensure that grant funds were properly spent.

PEER (2006, p20) addressed the inadequacies and gave the following recommendations; a) The MDE should maintain documentation of the rationale used in determining the grant applicants cut off scores. b) The MDE should ensure that school districts prepare and submit project evaluation reports by the deadline date. The districts should measure the effectiveness of their dyslexia program against the proposed objectives. c) The MDE should analyze the information submitted from the school
districts to determine the overall effectiveness of the dyslexia grant programs. At
minimum, this analysis should include measurements of the effectiveness against
objectives, determine students’ improvement, and determine the most effective teaching.
Methods, d) The MDE should conduct post audit of funds granted by the department and
require documentation to ensure that funds were utilized for their intended purposes.

The PEER (2006) recommended that the MDE include the analysis of the
dyslexia grant in its annual report to the Mississippi Legislature. The MDE submitted the
2009-2010 Report to the Mississippi Legislature on the Pilot Dyslexia Programs in
November 2009. MDE (2009, p. 1) reported that 14 school districts received the dyslexia
grant monies and pretest and posttest data was gathered from all districts. According to
MDE (2009, p. 1), 624 students were identified with the characteristics of dyslexia and
802 were placed in 14 different intervention programs chosen by the school districts.
Some programs were implemented within the classroom where all students were counted.
Each districts selected their assessment tool; therefore, 12 different instruments were used
to assess 636 students. Of the 636 assessed, 513 showed growth, 79 tested the same, and
44 did not show growth. MDE (2009) stated that from these results and monitoring of the
dyslexia grant districts, it is evident that students are identified, assessed and provided
appropriate instruction as required by the state.

Mississippi Standardized Testing

The Mississippi Curriculum Test, Second Edition (MCT2) provides a measure of
student achievement in Mathematics and Language Arts in third through eighth grades
based on the 2007 Mississippi Mathematics Frameworks and the 2006 Language Arts
Framework. It was also designed to meet the NCLB requirements (MDE, 2009).
The MCT2 is administered yearly over a three day period and contains test questions that are aligned with the Mississippi academic standards with test questions of varying degrees of difficulty. It is an untimed, multiple choice test that requires students to bubble in answers on an answer grid (MDE, 2009).

The Language Arts section of the MCT2 measures a student’s knowledge of grade level curriculum. Students in grades 3 and 4 answer 63 reading and writing items in the competency areas listed below (MDE, 2009).

- **Vocabulary:** The student will demonstrate the ability to use word recognition and vocabulary to communicate.

- **Reading:** The student will demonstrate the ability to apply skills and strategies to comprehend, respond to, interpret, or evaluate texts of increasing length, difficulty, and complexity.

- **Writing:** The student will demonstrate the ability to effectively communicate, express, evaluate, and exchange ideas.

- **Grammar:** The student will demonstrate the ability to communicate using standard English.

**No Child Left Behind Law (NCLB)**

A primary focus of this law is the requirement that school districts and individual schools use effective, research-based reading remediation programs so that all children are reading at grade level by the end of third grade (Wright, 2004). According to Wright (2004), the law authorizes funds for the following provisions.

- assistance to state educational agencies and local educational agencies in establishing reading programs for students in kindergarten through grade 3 that
are based on scientifically based reading research, to ensure that every student can read at grade level or above not later than the end of grade 3.

Research defines reading as a complex system of deriving meaning from print that requires all of the following instruction (Wright, 2004, p. 301).

- skills and knowledge to understand how phonemes or speech sounds are connected to print
- decode unfamiliar words,
- read fluently
- sufficient background information and vocabulary to foster reading comprehension
- the development of appropriate active strategies to construct meaning from print, and the development and maintenance of a motivation to read

Wright (2004) stated that statute defines the essential components of reading instruction as; explicit and systematic instruction in; a) phonemic awareness; b) phonics; c) vocabulary development; d) reading fluency, including oral reading skills; and e) reading comprehension strategies (p. 302). The term scientifically-based research is explained by Wright (2004) as research that involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs. Research-based reading instruction includes the following components.

- employs systematic, empirical methods that draw on observation or experiment
- involves rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions drawn
relies on measurements or observational methods that provide reliable and valid data across evaluators and observers, across multiple measurements and observations, and across studies by the same or different investigators

evaluated using experimental or quasi-experimental designs in which individuals, entities, programs, or activities are assigned to different conditions and with appropriate controls to evaluate the effects of the condition of interest, with a preference for random-assignment experiments, or other designs to the extent that those designs contain within-condition or across-condition controls

ensures that experimental studies are presented in sufficient detail and clarity to allow for replication or, at a minimum, offer the opportunity to build systematically on their findings

has been accepted by a peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective and scientific review (Wright, 2004, p. 302)

No Child Left Behind describes three types of reading assessments: screeners, diagnostic assessments, and classroom-based instructional reading assessments (Wright, 2004).

A screener is a brief procedure designed as a first step to identify children at high risk for delayed development or academic failure and in need of further diagnosis.

A diagnostic assessment is based on research and is used for the purposes of identifying a child's specific areas of strengths and weaknesses so that the child has learned to read by the end of grade 3; determining any difficulties that a child may have in learning to read and the potential cause of such difficulties; and
helping to determine possible reading intervention strategies and related special needs.


The Individuals with Disabilities Education Act 2004 (IDEA)

According to Wright (2004), the Individuals with Disabilities Education Act 2004 (IDEA), Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) define the rights of students with dyslexia and other specific learning disabilities. Section 504 provides the right to a free, appropriate public education (FAPE). This includes the right to special education and related services for children with disabilities for individuals from age three through high school graduation, or age 21, whichever comes first. A free appropriate education is one that is calculated and provides meaningful benefits to the student (Wright, 2004). These special services include education programs designed to meet the needs of dyslexic students. The Acts also protect people with dyslexia against unfair and illegal discrimination (Wright, 2004)

Accommodating Students with Dyslexia

According to the International Dyslexia Association (IDA), in order for schools to provide a free, appropriate public education (FAPE) for students protected under section 504 of the Rehabilitation Act, accommodations and modifications may be necessary. The IDA provides an organized list of accommodations and modifications involving materials, interactive instruction, and student performance (IDA, 2002).

Accommodations Involving Materials

Students spend the majority of the day interacting with materials; therefore, material accommodations can enhance the learning of dyslexic students (Mercer, 2002).
Accommodations may include the use of a tape recorder, simplified instructions, the breaking down of assignments into smaller parts, less visual stimuli on material, use of a highlighter on essential information, provision of additional practice activities, provision of a glossary of terms and provisions of a reading guide (Mercer, 2002).

*Accommodations Involving Interactive Instruction*

Engaging students for a period of time requires teaching and managing skills (Mercer, 2002). Teaching and interactions that provide successful learning experiences for students include; the use of explicit teaching procedures, repeated instructions, maintaining daily routines, providing a copy of lecture notes, providing graphic organizers, giving step-by-step instruction, simultaneously combining verbal and visual information, use of mnemonic instruction, and daily review (Mercer, 2002).

*Accommodations Involving Student Performance*

According to Mercer (2002), students with dyslexia vary in their ability to respond in different modes. Strengths and weaknesses may vary in oral presentations, discussions, writing, reading, spelling, drawing, or speaking at a fast space. Many students with dyslexia vary in their processing speed when presented with visual and/or auditory information. Accommodations involving the mode of receptive and expressive processing include provision of an outline of the lecture, provision of a graphic organizer, preferential seating with few distractions, encourage the use of assignment books and calendars, use cues to denote important information, use of instructional-aids, display work samples, peer mediated learning, note sharing, and flexible work times (Mercer, 2002).
Summary

In Chapter I, the researcher stated that the purpose of the study was to examine the impact of the Mississippi Department of Education’s Dyslexia Grant Program. The study examined the relationship between third grade language arts scores and the MDE Dyslexia Grant. The study also determined if the grant dollar amounts and the type of intervention implemented had an effect on student achievement. The identification process of students, assessment of student progress, and the sustainability of the intervention programs were also examined by the researcher.

Chapter I also revealed background information on dyslexia and provided the definition of dyslexia and appropriate intervention methods. The prevalence of dyslexia was discussed and the critical need for appropriate early intervention was stated. The study will provide information to state leaders and school administrators that will help them evaluate the effectiveness of the MDE Dyslexia Grant Program on student achievement. The study may assist state leaders to direct future grants that will facilitate the provisions for fair and adequate services statewide for dyslexic students.

Chapter II provided a literature review revealing studies on individuals with the specific learning disability of dyslexia date to as early as 1676 (Clark & Uhry, 2004). Today, there is documented medical proof of its existence through FMRI studies performed at Yale Medical University (Shaywitz, 2003). The prevalence of the disability is well studied, and it is believed to affect 15-20% of the population at large (IDA, 2010). Chapter II discussed the lifelong effects on individuals with dyslexia. Most dyslexics struggle as students; however, many possess special talents and gifts that they depend on for their livelihood later in life (Davis, 2010). Secondary effects of dyslexia can lead to
emotional and social problems. Emotional problems such as depression and anxiety are common among individuals with dyslexia (Ryan, 2004). Societal issues stem from the studies that show 27% of reading disabled children drop out of high school (NICHS, 2000). These children are more likely than their peers to interact with the justice system and are less likely to obtain rewarding financial employment (NICHS, 2000).

Dr. Sally Shaywitz (2003), a physician and dyslexia neuropathology researcher at Yale Medical University, stated that the dyslexia identification process has been well studied and a diagnosis can be made as precisely and scientifically as almost any diagnosis in medicine. Chapter II provided information on Mississippi law and its provisions for the Mississippi Department of Education’s Dyslexia Grant Pilot Programs. Leadership and the importance of the administrator’s role in assuring that teachers are appropriately trained to meet the learning needs of students were documented in Chapter II. Requirements and criteria for applying for the MDE Dyslexia Grant were provided as well as an explanation of the Mississippi Curriculum Test, Second Edition (MCT2). Chapter II also stated the provisions for students and reading instruction under the No Child Left Behind Act. The federal law for the Individuals Disability Educational Act (IDEA), including the Free Appropriate Public Education Act (FAPE) and Section 504 of the Civil Rights Amendment, were also reviewed as they related to individuals with dyslexia.

In Chapter III, the researcher will restate the purpose of the study and the benefits it may provide. The researcher will describe the statistical analysis that will be performed, the IRB process to follow, and the process for gathering information. The
researcher will describe statistical analysis to be performed using the data gathered and possible barriers that could affect the data.
CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to determine the impact of the Mississippi Department of Education’s (MDE) Dyslexia Grant Program on student achievement as measured by the MDE standardized tests Mississippi Curriculum Test (MCT 2006) and Mississippi Curriculum Test, Second Revision (MCT2 2007-2010). The researcher examined the relationship between third grade MCT 2006 language arts scores and the current MCT2 2007-2010 language arts scores on Mississippi school districts that received the dyslexia grant for the school years 2007 through 2010. Pre and post standardized testing data were studied comparing third grade language arts scores before the school districts received the MDE Dyslexia Grant to language arts test scores after one-year of implementing intervention. The study also determined if grant dollar amounts and the type of intervention that was implemented had an effect on student achievement.

A survey tool was used to conduct interview questions with school district personnel that determined if progress made by the students who received the intervention was tracked and if the dyslexia interventions were sustained after the initial grant was awarded.

Research Design

The research design was a fully Repeated Measures (RM) Analysis of Variance (ANOVA) evaluating the differences between third grade language arts MCT2 scores before and after receiving the dyslexia grant. The effects of the funding amounts were studied, as well as the intervention types implemented by the grant recipients.
Participants

The study included the 2007-2010 dyslexia grant recipients’ third grade language arts achievement test scores from school years 2006-2010. The Mississippi Department of Education’s Dyslexia Coordinator provided a list of the school districts that received the dyslexia grant, funding amounts awarded, and interventions purchased for each school district for FY 2007 through FY 2010. Telephone interviews were conducted with key school grant personnel as a post grant follow up on the sustainability of the interventions purchased by the grant.

Instrumentation

Archival data from the MDE website and the Mississippi MDE Dyslexia Grant Program were used to conduct the study. These data included the MDE standardized achievement test data for third grade language arts scores (MCT 2006 and MCT2 2007-2010), survey questions answered by personnel from the school districts that received the MDE Dyslexia Grant (2007-2010), and the funding amounts for the grant of each school districts (2007-2010).

Procedures

The researcher applied for permission to conduct the study from the Institutional Review Board of Research (IRB) (Appendix A). A survey instrument list of questions for conducting phone interview questions with school district personnel was approved also by IRB (Appendix B). After receiving IRB approval, third grade language arts standardized test scores from Mississippi school districts that received the grant were retrieved from the MDE website for school years 2006-2010. The Mississippi Department of Education’s Dyslexia Coordinator provided the names of school districts
that have received the grant, dollar amounts awarded and interventions purchased for the years 2007-2010. The list of grant recipients, funding amounts, interventions, pre and post third achievement test scores and answers to survey question were entered into excel and a spreadsheet was produced for evaluation (Appendix C).

Data Analysis

A quantitative study with a Quasi-Experimental Longitudinal design was used in order to determine whether there were differences in third grade language arts standardized test scores as a result of receiving a dyslexia grant. Measures of central tendency, mean, median and mode, as well as information on the distribution of test results, range variance and standard deviation were reported. A fully Repeated Measures ANOVA was conducted to evaluate Mississippi school districts’ third grade language arts standardized test scores for the school years 2006-2010. The study examined pretest and posttest scores of schools receiving the dyslexia grant, the relationship of the dollar amount awarded to each school district, and the effects of the intervention. The data was analyzed to determine if data was parametric or non parametric, and the appropriate statistical analysis was conducted.

Summary

In Chapter I, the researcher stated that the purpose of the study was to determine whether there were differences in third grade language arts standardized test scores as a result of receiving a dyslexia grant. Background information on dyslexia, the definition of dyslexia, and information on appropriate intervention methods were provided. The prevalence of dyslexia was discussed and the critical need for appropriate early intervention was stated. The significance of the study is revealed to provide information
that will benefit Mississippi intervention specialists and administrators when choosing effective methods for their school districts. The researcher’s goal was to provide information that will assist Mississippi educators in serving young dyslexic students statewide.

Chapter II contained a review of the literature that began with the historical review of the learning disability of dyslexia. The current definition of dyslexia was stated, as well as the primary and secondary effects of the learning disability. Chapter II revealed the most recent brain and genetic studies conducted on dyslexic individuals, and the life stories of several successful dyslexic individuals were presented. In Chapter II, psycho-educational evaluations and dyslexia intervention programs were discussed, as well as organizations for the accreditation of training programs and the certification of teachers and therapists. Leadership and the role of administrators on teacher training and the provisions for effective instruction for dyslexic students were discussed, as well as the federal laws that protect students with disabilities and appropriate accommodation recommendations.

In Chapter III, the researcher explained that the quantitative Quasi Experimental Longitudinal design will be a Fully Repeated Measures Analysis of Variance comparing achievement test scores of school districts pre and post receiving the dyslexia grant. The participants in the study are identified as Mississippi Public School District’s standardized test scores 2006-2010, data from Mississippi Department of Education’s Dyslexia Grant Program for 2007-2010, and school grant recipients. The IRB process and gathering of data procedures were also described in Chapter III.
CHAPTER IV
ANALYSIS OF DATA

Introduction

The purpose of this study was to determine the impact of the Mississippi Department of Education’s (MDE) Dyslexia Grant Program on student achievement as measured by the MDE standardized tests; Mississippi Curriculum Test (MCT 2006) and Mississippi Curriculum Test, Second Revision (MCT2 2007-2010). The researcher examined the relationship between third grade MCT 2006 language arts scores and the current MCT2 2007-2010 language arts scores on Mississippi school districts that received the dyslexia grant for the school years 2007 through 2010. Pre and post standardized testing data was studied comparing language arts scores before the school districts received the MDE Dyslexia Grant to language arts test scores after implementing intervention. The study also determined if grant dollar amounts and the type of intervention implemented had an effect on student achievement and sustainability of the programs.

Descriptive

Archival data gathered included the Mississippi Public School Districts’ standardized test scores from 2006-2010, a list of grant recipients from 2007-2010 and funding amounts from the Mississippi Department of Education’s Dyslexia Grant Program. Telephone interviews were conducted with school districts’ special education directors or pertinent personnel that received the grants. Survey questions contained follow-up questions on student assessment and sustainability of the intervention programs purchased with the grant funds.
According to the Mississippi Department of Education, 52 dyslexia grants were dispersed from 2007 – 2010. Of those 52 grants, seven school districts were awarded two grants during those years. For the purpose of this study, 47 grants were studied due to a lack of response from four of the school districts representing five grants. A total of $1,069,460 was dispersed through these grants ranging from grant awards of $4,562 to $46,549.60 (Appendix C). The researcher conducted 41 telephone interviews using the IRB approved survey instrument (Appendix B). The interviews revealed that screening instruments determining the eligibility of students to participate in the dyslexia intervention programs varied in each school district. The screening instruments included a teacher administered dyslexia screener, checklists, DIBELS assessments, as well as, computer based universal screeners such as AIMSweb and Measure of Academic Progress (MAP). Assessments administered to track progress of the students following intervention purchased by the grant also varied among the school districts. Post assessments instruments identified were MCT2, Comprehensive Test of Phonological Awareness (CTOPP), Benchmark Assessments, DIBELS, Progress Marking, MAP, Wide Range Achievement Test (WRAT), and none (Appendix C).

The survey revealed that of the 41 school districts that participated in the interview, 30 sustained the intervention program after the grant cycle expired and 11 discontinued the intervention program due to lack of funding (Appendix C).
Table 1

*Interventions That Were 100% Sustainable*

<table>
<thead>
<tr>
<th>District</th>
<th>Year</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Panola</td>
<td>2008</td>
<td>Barton</td>
</tr>
<tr>
<td>Nettleton</td>
<td>2009</td>
<td>Barton</td>
</tr>
<tr>
<td>Pearl River</td>
<td>2009</td>
<td>Barton</td>
</tr>
<tr>
<td>Poplarville</td>
<td>2009</td>
<td>Barton</td>
</tr>
<tr>
<td>Wayne</td>
<td>2010</td>
<td>Barton</td>
</tr>
<tr>
<td>Franklin</td>
<td>2007</td>
<td>MC Method</td>
</tr>
<tr>
<td>Tupelo</td>
<td>2007</td>
<td>MC Method</td>
</tr>
<tr>
<td>Ponotoc</td>
<td>2007</td>
<td>MC Method</td>
</tr>
<tr>
<td>Meridian</td>
<td>2008</td>
<td>MC Method</td>
</tr>
<tr>
<td>Jones</td>
<td>2010</td>
<td>MC Method</td>
</tr>
<tr>
<td>Rankin</td>
<td>2010</td>
<td>MC Method</td>
</tr>
</tbody>
</table>

The researcher examined the relationship between third grade MCT 2006 language arts scores and the current MCT2 2007-2010 language arts scores on Mississippi school districts that received the dyslexia grant for the school years 2007 through 2010. Pre and post- standardized testing data were studied comparing language arts scores before the school districts received the MDE Dyslexia Grant to language arts test scores after implementing intervention.
Table 2

*MCT2 Scores for Each Grant Year (2007-2010)*

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>MEAN</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd Grade 2007</td>
<td>11</td>
<td>149.68</td>
<td>2.537</td>
</tr>
<tr>
<td>3rd Grade 2008</td>
<td>11</td>
<td>148.96</td>
<td>3.152</td>
</tr>
<tr>
<td><strong>2008 Grant Recipient Scores</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>N</td>
<td>MEAN</td>
<td>SD</td>
</tr>
<tr>
<td>3rd Grade 2007</td>
<td>11</td>
<td>149.89</td>
<td>2.013</td>
</tr>
<tr>
<td>3rd Grade 2008</td>
<td>11</td>
<td>148.97</td>
<td>3.044</td>
</tr>
<tr>
<td>3rd Grade 2009</td>
<td>11</td>
<td>148.20</td>
<td>3.976</td>
</tr>
<tr>
<td><strong>2009 Grant Recipient Scores</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>N</td>
<td>MEAN</td>
<td>SD</td>
</tr>
<tr>
<td>3rd Grade 2008</td>
<td>12</td>
<td>147.59</td>
<td>3.345</td>
</tr>
<tr>
<td>3rd Grade 2009</td>
<td>12</td>
<td>147.58</td>
<td>2.654</td>
</tr>
<tr>
<td>3rd Grade 2010</td>
<td>12</td>
<td>149.05</td>
<td>2.182</td>
</tr>
</tbody>
</table>
| **2010 Grant Recipient Scores** **
| Year          | N  | MEAN  | SD   |
| 3rd Grade 2009| 13 | 148.76| 3.054|
| 3rd Grade 2010| 13 | 148.56| 2.991|

*Pre-grant year unavailable due to different test, MCT.*  
**2011 MCT2 scores not yet available.

There was no significant difference between third grade language arts MCT2 scores before the schools received the dyslexia grant and after the school district received and implemented the dyslexia grant.
Table 3

*Multivariate Statistic for Each Grant Year*

<table>
<thead>
<tr>
<th>Year</th>
<th>Effect Value</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>Pillai's Trace</td>
<td>0.100</td>
<td>0.996</td>
<td>1.000</td>
<td>9.000</td>
</tr>
<tr>
<td></td>
<td>F(1,9)=.996, p=.344, NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>Pillai's Trace</td>
<td>0.386</td>
<td>2.833</td>
<td>2.000</td>
<td>9.000</td>
</tr>
<tr>
<td></td>
<td>F(2,9)=2.833, p=.111, NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>Pillai's Trace</td>
<td>0.328</td>
<td>2.444</td>
<td>2.000</td>
<td>10.000</td>
</tr>
<tr>
<td></td>
<td>F(2,10)=2.44, p=.137, NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>Pillai's Trace</td>
<td>0.006</td>
<td>0.068</td>
<td>1.000</td>
<td>12.000</td>
</tr>
<tr>
<td></td>
<td>F(1,12)=.068, p=.798, NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

H<sub>02</sub>: There will be no significant difference based on the dollar amount of the grant awarded to the school districts on third grade language arts MCT2 scores comparing scores before receiving the dyslexia grant and after receiving and implementing the dyslexia grant.

Since no significant difference in scores was found, there is no effect for dollar amount.

H<sub>03</sub>: There will be no significant difference based on dyslexia interventions implemented in school districts on third grade language arts MCT2 scores comparing
scores before receiving the dyslexia grant to post one year receiving and implementing the grant. Since no significant difference in scores was found, there is no effect for intervention type.

Summary

The researcher discovered several interesting findings as a result of the combined qualitative and quantitative study. Research revealed that of the forty-one (41) schools interviewed, a total of forty-seven (47) grants were received and implemented. Thirty (34) grants were used to implement a student pull-out program, while thirteen (13) grants were used to purchase training for whole classroom instruction. Twenty-five (25) of the pull-out programs were sustained while six (6) of the whole classroom interventions were sustained.

The Texas Scottish Rite (TSR) Video Program was the least sustainable intervention with ten TSR programs discontinued at the conclusion of the grant cycle. The Mississippi College Dyslexia Therapy Method and the Barton Method were the most sustainable intervention with all programs continuing at the end of the grant cycle. Research indicated that the grant dollar amount awarded to a school district had no effect on achievement scores. Interestingly, the four school districts awarded the least amount of funds, under $10,000.00, all sustained their intervention programs.

The following quotes were documented during the researcher’s interviews:

- Teacher: “Because of the grant, my eyes have been opened to the disability.”
- Special Education Director: “I wish I had been taught about dyslexia in college and the interventions to meet their needs” (Appendix B, 2011).
- Superintendent of Schools: “Dyslexia is a four letter word to school administrators. If we can ignore it long enough, we hope it will just go away”.
- Special Education Director: “No one asked us about our dyslexia grant before”.
- Elementary Principal: “We don’t have a program for dyslexic students, we just pray for them” (Appendix B, 2011).
CHAPTER V
SUMMARY OF STUDY

Introduction

The National Institute for Children’s Health and Human Services (NICHD, 2000), revealed that reading disabilities affect 15-20% of the population and of those 15-20% with a reading disability, 85% are individuals with the specific learning disability of dyslexia. Lyon (2000), Chairman of the National Academy of Education’s Commission on Reading, revealed in his report to congress, that if low-achieving students can be brought up to grade level in the first three years of school, their reading performance tends not to revert but to stay at grade level. Therefore, if we fail to bring students’ reading to grade level within those first few years, the likelihood of their ever catching up is slim even with extra funding and special programs. This report also stated that 75% of children who are poor readers in the third grade remain poor readers in the ninth grade (Lyon, 2000).

According to the International Dyslexia Association (IDA, 2010), dyslexia is described as a prevalent reading disability affecting approximately 15 to 20 % of the population at large. Figures provided by schools to the United States Department of Education revealed only a glimpse of the staggering statistics due to the fact that many dyslexics do not qualify for special education services within their schools (Shaywitz, 2003). According to Dr. Reid Lyon, former chairman NICHD in his 1995 report, approximately 10 million children struggle with reading in the United States (Shaywitz, 2003). Dyslexia is the most common reading disability and is non-discriminatory, affecting learners of all races and cultures (Shaywitz, 2003).
Due to scientific evidence of the prevalence of dyslexia, and the research proving that provisions of dyslexia intervention in the early grades for dyslexic students is crucial, the Mississippi Legislature enacted an amendment to section 37-23-15, Mississippi Code of 1972. MDE (2009) stated the Law in House Bill 1058 and reported in the Report to the Mississippi Legislature on the Pilot Dyslexia Programs.

To clarify the definite on of related disorders, to require the state department of education to select literacy and numeracy screening instruments to be used throughout the state by school districts; to require all school districts to use the screening instruments chosen by the department; to prohibit school districts from using the screening instrument to determine whether or not a student is to be promoted; to authorize the department to receive and expend funds from any source to screen students for literacy and numeracy difficulties; to require the department to annually report on effectiveness of the literacy and numeracy screening instruments; and for related purposes. (p. 3)

MDE (2009) stated that House Bill 1058 resulted in the two key provisions of the law. Section 1 of the Law stated Key Provisions that the State Department of Education shall follow.

- adopt pilot programs under which students enrolled in public schools shall be tested for dyslexia and related disorders based on the request of a parent, student, school nurse, or other personnel who has reason to believe that a need for testing exists
- provide remediation in a multi-sensory, systematic, language based regular education program as determined by the district:
by January 1, 1997, make recommendations to school boards designated as pilot sites for the delivery of services to students who are identified as dyslexic

- minimum funding funds cannot be used

- school districts are not required to participate

- submit a report to the Regular Session of the Legislature to be submitted to the Chairman of Education Committees of the Senate and the House of Representatives by November 1 (MDE, 2009, p. 7).

MDE (2009) stated that Section 2 of the Law stated Key Provisions that the State Department of Education shall follow.

- The State Department of Education shall select an early literacy and numeracy assessment instrument/instruments for screening all students in K-3

- All School districts shall use the screening instrument/instruments; however, school districts will not use them for the purpose of promoting or retaining students.

- In addition to those funds that are appropriated by the legislature, the State department of Education may receive and expend funds from other sources.

- The State Department of Education shall establish a reporting system for school districts in order to monitor the effectiveness of the assessment instrument/instruments.

- The department shall prepare an annual report on the effectiveness of the assessment instrument/instruments that must be submitted to the Senate and House of Representatives on later than November 1 of each year.
The requirements of this section shall be effective beginning with the 2008-2009 school year and compliance shall be subject to appropriation by the Legislature.

(MDE, 2009, p. 7)

In response to this law, the Mississippi Department of Education (MDE) implemented the Dyslexia Grant Pilot Program in fiscal year (FY) 1997. As of FY 2010, MDE has awarded 222 one-year grants to 79 Mississippi School Districts (MDE, 2010). Dyslexia is not recognized as a special education disability in Mississippi; therefore, the purpose of the dyslexia grant is to support general education teachers in meeting the needs of general education students identified as having dyslexia (MDE, 2011).

Summary of Study

The purpose of this researcher’s study was to determine the impact of the Mississippi Department of Education’s (MDE) Dyslexia Grant Program on student achievement as measured by the MDE standardized tests; Mississippi Curriculum Test (MCT 2006) and Mississippi Curriculum Test, Second Revision (MCT2 2007-2010).

Participants of the study included archival data gathered from the Mississippi Public School Districts’ standardized test scores from 2006-2010. Documentation was provided by the Mississippi Department of Education’s Dyslexia Grant Coordinator containing the names of the school districts that received dyslexia grants from 2007-2010 and the funding amounts awarded to each district. Telephone interviews were conducted with the school districts’ grant contact personnel and questions were asked about identification of dyslexic students, assessments to track student progress, and the sustainability of the intervention programs purchased with the grant funds.
Limitations

The MCT2 test does not allow for measuring progress of an isolated population of learners. School districts group all learners’ MCT2 scores together regardless of learning differences. Dyslexia affects approximately 15% of the learners; however, it can only be assumed they received intervention by the third grade. The researcher assumed that third grade dyslexic students received intervention in the 41 participating school districts because third graders were specifically stated as those who would receive intervention.

Conclusions

According to the Mississippi Department of Education, 52 dyslexia grants were dispersed from 2007 – 2010. Of those 52 grants, seven school districts were awarded two grants during those years. For the purpose of this study, 47 grants were studied due to a lack of response from four of the school districts representing five grants. A total of $1,069,460 was dispersed through these grants ranging from grant awards of $4,562 to $46,549.60 (Appendix C).

The researcher conducted 41 telephone interviews with school districts’ grant contact personnel. Interviews with the 41 school districts contacted revealed that screening instruments determining the eligibility of students to participate in the dyslexia intervention programs varied in each school district. The screening instruments used included a teacher administered dyslexia screener, checklists, DIBELS assessments, as well as, computer based universal screeners such as AIMSweb and Measure of Academic Progress (MAP).

Assessments administered to track progress of the students also varied among the school districts. Post assessments instruments identified during the interview included
MCT2, Comprehensive Test of Phonological Awareness (CTOPP), Benchmark Assessments, DIBELS, Progress Marking, MAP, Wide Range Achievement Test (WRAT), and none.

The interviews conducted by the researcher revealed that of the forty-one school districts that participated in the interview, 30 sustained the intervention program after the grant cycle expired and 11 discontinued the intervention program due to lack of funding.

In summary, the researcher came to the following conclusions in response to the research questions.

1. Assessments were not standardized among the districts statewide to track the progress of the students who received dyslexia intervention. The assessment instruments varied by each school and made it impossible to measure the overall effectiveness of the MDE Dyslexia Grant on student achievement.

2. Of the 41 school district interviews conducted, it was revealed that 30 of the intervention programs were sustained beyond the one year grant cycle. The Texas Scottish Rite Videos were the least sustainable. The Mississippi College Dyslexia Therapy Training and the Barton Method were the most sustainable programs.

3. There were no statistical differences in third grade achievement scores in schools pre and post of receiving the grant. The conglomeration of the MCT2 scores on a district wide basis, without a separation of subset scores for those who received intervention, acted as a limitation on the study.

It was revealed through the interview process that instruction delivered through the Texas Scottish Rite (TSR) Videos was beneficial to students; however, was the least sustainable beyond the one year grant cycle. This intervention was delivered via videos
and school’s utilized paraprofessionals as video facilitators. The intervention was delivered in small groups 5 days a week in one hour sessions. Reasons given for lack of sustainability included lack of funding available for facilitator salaries and workbooks, lack of personal interaction with therapist, dated and boring video, and videos were misused by facilitators.

The Barton Method was one of the most sustainable interventions purchased with the grant funding. The Barton Method is a scripted one-on one tutoring intervention that was delivered predominately by paraprofessionals in the school districts. The students received the intervention 2 to 5 days per week in approximately one-hour sessions.

The Mississippi College (MC) Dyslexia Training Method was also sustained beyond the one-year grant cycle. The MC Method is a comprehensive Master’s Degree training program that prepares certified teachers to become dyslexia therapists. Students receiving this intervention participated in dyslexia therapy sessions 2 to 5 days per week in one-hour sessions.

The MDE (2011) states that dyslexia grant proposals are evaluated on a maximum 100 point system.

- Identification of students (15 points)
- Project Objectives (15 points)
- Multisensory, Systematic, Explicit, Language-Based Reading Program (20 points)
- Evaluation (10 points)
- Professional Development Plan (20 points)
- Replicable and Sustainability (10 points)
- Budget (10 points)
According to the MDE (2011), in order for schools to receive the grant funding, these requirements must be followed.

- Receive training in dyslexia with MDE initial meeting
- Receive training in multisensory and language-based programs designed for dyslexia
- Oversee the implementation of the dyslexia plan outlined in the grant proposal
- Provide data on students' progress through pre-test and post-test assessments throughout the year
- Expend grant funds in their entirety to the approved proposed budget

While the guidelines for the grant (MDE, 2011) were well defined, there was a lack of standardization of policies and procedures for identification of dyslexia, type of intervention, and assessment of student progress.

The school districts identified student participants and tracked student progress through instruments of their choice making it impossible to measure the effectiveness of the program statewide. The school districts purchased multisensory programs and implemented them as they chose with no standard policy or procedures. There was no post grant data available by the MDE as to the effectiveness of the grants dispersed from 2007-2010.

The purpose of this researcher’s study was to determine the impact of the Mississippi Department of Education’s (MDE) Dyslexia Grant Program on third grade student achievement. The researcher could find no significant difference on third grade achievement made by the MDE Dyslexia Grant; however, the researcher did discover that the recipients of the grant had become more aware of the characteristics of dyslexia and
familiar with science-based reading interventions. During a majority of the interviews conducted, the researcher heard the frustrations of well meaning school personnel due to the lack of dyslexia education taught in the schools of teacher education in Mississippi’s colleges and universities. The researcher has come to the conclusion that greater dyslexia awareness has been brought about in Mississippi school districts by the MDE Dyslexia Grant.

**Recommendations for Policy or Practice**

Dyslexia affects written language achievement in individuals of average to above average cognitive ability in spite of traditional classroom instruction. Dyslexia typically affects the phonological component of language and impedes the ability to read; therefore, in order to identify a student struggling with dyslexia, testing of cognitive ability, phonological awareness and reading accuracy and rate, is critical. Matching dyslexic students to appropriate intervention is critical to their success; therefore, identification must be done early and appropriately (Shaywitz, 2003).

The researcher discovered through telephone interviews that the process used for the identification of dyslexia was vague and loosely addressed by the school districts and many of the interviews revealed that testing for dyslexia was not a policy in the districts; therefore, it was uncertain to school personnel if students participating in their dyslexia intervention programs were actually dyslexic.

To measure the effectiveness of the MDE Dyslexia Grant, the researcher recommends policies and procedures be put in place that require districts receiving the grant to follow standardized policies and procedures for the identification and diagnosis of dyslexic students in order to place them in an appropriate intervention program.
According to the International Dyslexia Association (2010) procedures for identification should begin with a teacher and parent checklist of indicators. If the checklist indicators reveal that the student is at risk of dyslexia, an appropriate team of professionals that include a Speech Language Pathologist and Psychometrist, or School Psychologist, should administer a battery of tests to make a definitive diagnosis of dyslexia.

Shaywitz (2003) stated that dyslexia affects the phonological component of language and is unexpected due to an average or higher intelligence. Shaywitz (2003) stated that testing for dyslexia should include a phonological evaluation, intelligence test, reading evaluation and an individual achievement test. The most commonly administered tests include; the Woodcock Johnson, Comprehensive Test of Phonological Awareness (CTOPP), the Gray Oral Reading Test (GORT), and the Wide Range of Achievement Test (WRAT).

Implementing a policy and procedures for proper identification of dyslexia that include teacher parent checklists in addition to results from a battery of instruments will better insure the appropriate placement of students in a dyslexia intervention program. The researcher recommends that a common assessment tool, such as WRAT, be utilized by all school districts receiving the grant as a pre and post intervention measurement tool to track individual achievement progress. Measuring the progress of the students using an assessment instrument common in all districts, will allow grant recipients the data needed to make informed choices when selecting interventions and implementing programs that are most beneficial and sustainable.

Since MCT2 testing is required yearly of all third graders, the researcher also recommends that a record of the MCT2 scores of students receiving dyslexia
intervention be sorted separately as a sub-group in order to track their progress district wide and state-wide.

According to the Mississippi Department of Education’s Dyslexia Handbook (2010), “any program that is used for dyslexia intervention should have been originally designed only for students with dyslexia. Interventions based upon traditional reading instructional programs and only adapted for students with dyslexia should be avoided because they will not include all of the components necessary for success” (p. 18).

The MDE recognizes that the remediation of dyslexia requires specialized instruction; however, they do not endorse specific comprehensive dyslexia training for school districts that receive the grant. It is the recommendation of the researcher that standardized policies and procedures be enacted for all school districts receiving the grant for the identification of dyslexic students, implementation of science based reading intervention programs and tracking the progress of the students. These recommendations will allow for a more thorough evaluation of the MDE Dyslexia Grant Program in the future and more efficient use of dyslexia grant funding.

Recommendations for Future Research

The researcher noted throughout the interviews with teachers statewide a common complaint of the lack of teacher preparedness to meet the needs of students with dyslexia. Many of the educators voiced their frustration and disappointment in our state’s teacher education programs and the lack of knowledge and understanding of dyslexia with general education instructors. Future research recommendations would include a study of the under graduate requirements in dyslexia education for both general education and special education in Mississippi’s colleges and universities.
Previous studies in the United Kingdom revealed 40% of the prison population exhibited the characteristics of dyslexia. Due to this over representation of incarcerated individuals with learning disabilities, an additional recommendation for future research includes the study of the impact of dyslexia on the criminal justice system in Mississippi. This researcher would also recommend that future studies take into account the limitations of this study and that future studies be designed to more precisely evaluate the academic performance of dyslexic students and the effects of dyslexic intervention on their academic progress.
APPENDIX A

IRB APPROVAL

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.6820 | Fax: 601.266.4377 | www.usm.edu/irb

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 21, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: C11050302
PROJECT TITLE: The Impact of the Mississippi Department of Education's Dyslexia Grant Program
PROJECT TYPE: Previously Approved Project
RESEARCHER/S: Cena Holifield
COLLEGE/DIVISION: College of Education & Psychology
DEPARTMENT: Educational Leadership & Administration
FUNDING AGENCY: N/A
IRB COMMITTEE ACTION: Exempt Approval
PERIOD OF PROJECT APPROVAL: 07/25/2011 to 07/24/2012

[Signature]
Lawrence A. Hosman, Ph.D.
Institutional Review Board Chair
APPENDIX B

TELEPHONE INTERVIEW QUESTIONS

Name of School District ________________ phone # __________

1) How many MDE dyslexia grants has the school district received in the past 5 years?

2) What interventions were purchased with the MDE dyslexia grant funds?

3) How were the students identified that received the intervention?

4) What grade level students received the intervention?

5) Was intervention delivered by a professional or paraprofessional?

6) In what type of setting was intervention delivered?

7) What training did this person receive prior delivering intervention?

8) Were assessments used to track students’ progress? If so, what type?

9) Approximately how many students received the intervention and how often did they receive the intervention?

10) Did the intervention program continue during the 2010-11 school year?

11) If not, why was intervention program discontinued?
References


Lindamood-Bell (2011) Lindamood-Bell learning processes. Retrieved from:
http://www.lindamoodbell.com/


http://www.mc.edu/about/offices/public_relations/news/?story=141


