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PROGRAM EVALUATION OF A SCHOOL DISTRICT'S MULTISENSORY READING INITIATIVE

A Dissertation Presented to

The Faculty of the School of Education

The College of William and Mary in Virginia

In Partial Fulfillment of the

Requirements for the Degree of

Doctor of Education

---

by

Michael Patrick Asip

April 11, 2012

PROGRAM EVALUATION OF A SCHOOL DISTRICT'S
MULTISENSORY READING INITIATIVE

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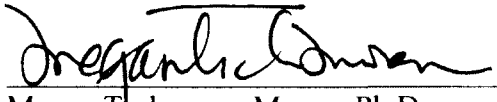
Michael P. Asip

Approved April 11, 2012 by



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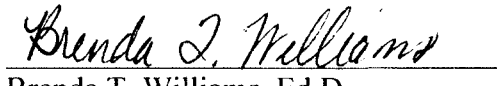

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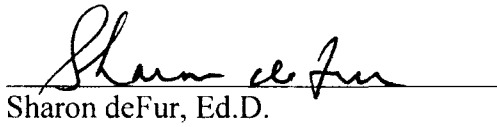

Sharon deFur, Ed.D.

DEDICATION

I dedicate this dissertation to my family for being been a continuing source of support, encouragement, and strength in my life! This culminating achievement reflects a long journey during which our family has grown together, now as adults! My wife, Leslie, is the rock in my life. She has been a powerful support, especially as this project and document have taken shape. But most importantly, her love has lifted me toward successful achievement of this educational goal through continued caring, encouragement, and sustenance as she sacrificed her own needs so that I could be successful in this endeavor. Leslie's intuitive, caring, and thoughtful insights have so often enhanced my understanding and expressions of knowledge learned throughout my studies. My son, Danny, and daughter, Cailin, have grown into wonderful adults during the course of my doctoral studies. They too have supported me and encouraged my achieving this goal. While I have still tried to be there for them in their many interests and pursuits, I am thankful for their understanding and support over these years when I may not have been as involved in some events in their lives as I would have liked. I am proud of their growth as strong, caring, thoughtful adults! I realize that I am a fortunate person as I have felt the love of family as I have successfully pursued my personal, educational and professional goals. So I dedicate this dissertation to Daniel Asip, Cailin Asip, and Leslie Baskin-Asip for their continued love, support and inspiration in my life!

TABLE OF CONTENTS

DEDICATION.....iii

ACKNOWLEDGEMENTS.....ix

LIST OF TABLES.....xi

LIST OF FIGURES.....xii

ABSTRACT.....xiii

CHAPTER I: INTRODUCTION.....2

Problem.....8

Program Evaluation Model.....10

Logic Model.....11

Evaluation Questions.....13

Definition of Terms.....13

Summary.....17

CHAPTER II: REVIEW OF THE LITERATURE.....18

The Importance of Reading Achievement.....19

The Report of the National Reading Panel.....21

The NRP and Phonemic Awareness Instruction.....22

The NRP and Phonics Instruction.....23

The NRP and Phonics Instruction for Students with Disabilities..25

No Child Left Behind – Accountability for

Student Reading Performance.....26

Phonemic Awareness and Phonics Instruction.....31

Multisensory Structured Language Instruction.....34

Multisensory Structured Language Education.....36

The Content of Instruction.....36

The Principles of Instruction.....36

Orton-Gillingham Reading Instruction for Students with Disabilities...37

The Institute for Multisensory Education.....38

The Jefferson County Elementary Reading Curriculum and Instruction.41

Reading Workshop.....42

Words Workshop.....42

Writing Workshop.....43

The Developmental Reading Assessment (2nd ed.).....43

Professional Development.....46

Guiding Change in Special Education.....47

Jefferson County Public Schools Implementation of Multisensory

Reading Strategy Instruction.....49

High Incidence Students with Disabilities.....50

Actions to Support Multisensory Reading Initiative.....51

Fidelity of Implementation.....54

Summary.....56

CHAPTER III: METHODOLOGY.....59

Standards of Program Evaluation.....62

Guiding Principles for Evaluators.....62

Evaluation of JCPS Multisensory Reading Instruction.....63

Evaluation Questions.....64

Participants.....64

Students.....64

Teachers.....66

School-based Administrators.....68

Special Education Central Office Leaders.....68

The IMSE Staff Member.....69

Data Sources.....70

Review of Documents and Communications.....70

Survey.....71

Focus Groups.....75

Semi-structured Interviews.....77

Review of Student Achievement Data.....79

School-based Rubric.....79

Data Collection.....80

Teacher Survey.....80

Focus Groups.....81

Teacher Tabulation of Student Time in Multisensory Instruction.81

Student Achievement Data.....82

Data Analysis.....83

Ethical Considerations and Researcher Perspective.....87

Limitations and Delimitations.....88

Summary.....89

CHAPTER IV: RESULTS.....91

Teacher Survey – Multisensory Reading Instruction.....91

School Administrator and Teacher Focus Groups.....91

Central Office Special Education Staff Interviews.....92

IMSE Leader Interview.....92

Extant Student Instruction and DRA2 Data.....92

Document Review.....93

Evaluation Question 1.....97

Facilitating Conditions.....97

Constraints.....103

Summary.....112

Facilitating Conditions.....113

Constraints.....113

Evaluation Question 2.....114

The Special Education Reading Liaison.....114

The Provision of Multisensory Reading Instruction Resources and Materials.....115

Professional Learning Communities (PLC).....116

School Administrator Support for Multisensory Reading Instruction.....116

The Specialist and Liaison Support.....117

School District Support.....117

Evaluation Question 3.....117

Evaluation Question 4.....121

Recommendations Regarding Multisensory Reading Instruction.....127

Summary.....129

CHAPTER V: CONCLUSIONS.....130

Discussion of Findings.....130

Implementation of Multisensory Reading Instruction in JCPS.....131

Constraints and Facilitating Conditions Affecting Implementation of Multisensory Reading Instruction.....133

Facilitating Conditions.....133

Constraints.....134

Correlation Between Student Multisensory Instruction and DRA2 Gain Scores.....135

Hours of Multisensory Instruction.....135

DRA 2 Gain Scores.....137

Professional Development and Multisensory Reading Instruction.....138

Standards of Program Evaluation in the Study.....138

Recommendations Regarding Multisensory Reading Instruction.....140

Recommendations for Future Program Evaluation and Research.....144

Final Thoughts.....146

APPENDICES.....148

REFERENCES.....170

VITA.....179

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Conducting research and writing a doctoral dissertation are only completed with the support of many individuals. I am especially thankful for my dissertation committee chair, Dr. Megan Tschannen-Moran, for her expertise, encouragement, and trust in me through this process. Dr. Sharon deFur and Dr. Brenda Williams, as members of my dissertation committee, have provided valuable insights and suggestions that have helped to refine my thinking and improve this study. I owe a special tribute to Dr. Williams as she has also served as my advisor throughout most of this journey. I have appreciated her wise advice and wish her well in her retirement.

I am very thankful for the dedication and support from my colleagues in Chesterfield County Public Schools. Valerie Doebler, Assistant Director of Special Education, has frequently stepped up to "hold down the fort" while I have worked on this project. Beverly Bowlus, Administrative Assistant, has provided tremendous resourcefulness in gathering and organizing much of the data together with Antoinette Williams, Senior Program Analyst. The elementary special education team led by Instructional Specialists Dr. Kathy Beasley, Dr. Elizabeth Dragone, and Dr. Lauran Ziegler provided expert advice regarding the teacher survey and interview questions. I appreciate their leadership with their dedicated liaisons toward improving reading achievement of students with disabilities in Chesterfield County. Kim Bausum-Brown, the liaison who has spearheaded the special education multisensory reading initiative, has demonstrated insightful, dedicated leadership that continues to make a positive impact in helping so many more students learn to read.

Dr. Kevin Hughes, Manager of School Improvement, has provided so much technical assistance with Survey Monkey and statistical analysis of the data. Dr. Bruce Haslam, of Policy Studies Associates, has provided a professional program evaluator's expertise in reviewing the dissertation proposal. Dr. Peggy Miles, former Supervisor of Psychological Services, has been a resourceful and skilled co-facilitator of teacher and administrative focus groups. Dr. Jacqueline Bullock, Administrator for Child Study and Pre-Referral Services, has provided expert advice with review and refinement of the survey, focus group and interview questions. Jeanne Jeup, Director of Instruction for the Institute for Multi-sensory Education, has worked closely with the school district staff to coordinate the comprehensive multisensory reading professional development. Carol Lee Drake and Mary Ann Panella-Best effectively teamed up as the Institute trainers. For all who participated in interviews, survey, and focus groups, I am tremendously grateful!

I have been most fortunate to have a supervisor who has been pivotal in continually encouraging me in the completion of these doctoral studies and dissertation. Donna Dalton, Chief Academic Officer, has been a strong advocate for the improved achievement of students with disabilities and the multisensory reading initiative in Chesterfield County Public Schools.

Most importantly, I thank the elementary special education and general education teachers in Chesterfield County Public Schools for their continued dedication to the improved reading achievement of students with disabilities. It is the strong, effective, flexible balanced literacy instruction combined with the skillful, individualized, multisensory reading strategy instruction that will continue to provide students with disabilities opportunities to enjoy reading and become lifelong learners.

LIST OF TABLES

Table 1. Annual Measurable Objectives, Percent of Students Passing Assessments, Virginia 2007-2011.....4

Table 2. Jefferson County District English/Reading SOL Percent of Students Passing, Annual Measurable Objective (AMO), by Grade, 2007-2010.....5

Table 3. National NAEP Data: Fourth Grade Reading Scale Score Average.....19

Table 4. Design Plan for Survey Questions.....73

Table 5. Multisensory Reading Program Evaluation Data Collection and Analysis Worksheet.....90

Table 6. Survey Results: District-wide Activities that Support Teacher Implementation of Multisensory Reading Instruction.....100

Table 7. Survey Results: School-based Activities that Support Teacher Implementation of Multisensory Reading Instruction.....102

Table 8. Survey Findings: Teachers' Perception of School District Barriers to Implementation of Multisensory Reading.....106

Table 9. Teacher Survey: School-based Barriers Affecting Multisensory Reading Implementation.....107

Table 10. Survey Results. Percentage of Responses Noting Number of Weekly Multisensory Reading Sessions Based upon Years Student Is Behind Grade Level in Reading.....120

Table 11. Multisensory Hours of Instruction, DRA2 Data, Descriptive Statistics.....123

Table 12. Total MS Hours Beg. DRA2 – 6/2011 DRA2 – Jan/Feb 2012 Gain by Grade.....125

Table 13. Total MS Hours Beg. DRA2 – 6/2011 DRA2 – Jan/Feb 2012 Gain by Primary Disability.....126

Table 14. Correlation between DRA2 Gain Score and Student Hours of Multisensory Reading Instruction.....126

Table 15. Teacher Survey Responses: Recommendations.....128

LIST OF FIGURES

Figure 1. Logic Model – Implementation of Multisensory Reading Instruction, Jefferson County Public Schools.....12

Figure 2. Multisensory Language Triangle.....35

ABSTRACT

PROGRAM EVALUATION OF A SCHOOL DISTRICT'S MULTISENSORY READING INITIATIVE

The purpose of this study was to conduct a formative program evaluation of a school district's multisensory reading initiative. The mixed methods study involved semi-structured interviews, online survey, focus groups, document review, and analysis of extant special education student reading achievement data. Participants included elementary special education teachers of high incidence students with disabilities, elementary assistant principals, central office special education leaders, and contracted training partners. Facilitating conditions that supported multisensory reading instruction included supportive school administrators, professional learning communities, intensive initial professional development, plentiful instructional materials, and supportive central office personnel. Constraints included school master schedules, limited time for small group specialized reading instruction, inconsistent frequency and duration of multisensory instruction, reading instruction not aligned to student needs, inconsistent progress monitoring, isolation of multisensory skills without application, and inconsistent levels of administrative support. A correlation between hours of multisensory instruction and gain scores on the Developmental Reading Assessment (DRA2) showed no statistically significant relationship. Recommendations to strengthen the implementation of multisensory reading instruction included: providing additional and effective follow-up professional development, developing required progress monitoring tools, exploring assessments more aligned with multisensory instruction, fostering school-based reading PLCs, building accountability procedures that assist school administrators in supervising teacher implementation, and developing a comprehensive curriculum with more detailed

lessons and pacing guides. Recommendations for continued program evaluation are included with an annual process of review, including formal summative evaluation.

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PROGRAM EVALUATION OF A SCHOOL DISTRICT'S MULTISENSORY READING INITIATIVE

CHAPTER I

Introduction

States and school districts are taking actions to address the expectation that all students attain academic proficiency through the accountability measures of the No Child Left Behind Act (NCLB), also known as the Elementary and Secondary Education Act (ESEA). School districts and individual schools must attain specified annual measurable objectives of achievement for all students and each subgroup of students, including minority students, students for whom English is a second language, students from low socioeconomic status, and students with disabilities. School districts are seeking research-based practices to improve student achievement and are looking at the critical role early student literacy initiatives may play in raising overall student achievement. The National Assessment of Educational Progress (NAEP) indicated that, in 2009, 34% of USA public school fourth graders scored Below Basic in reading comprehension, 34 % scored Basic, 24% scored Proficient, and 7% scored Advanced (National Center for Educational Statistics, 2009).

While Virginia fared better than the national trends, with 74% of students at or above the Basic level (35% Basic, 29% Proficient, and 9% Advanced), there is cause for concern that more than a quarter (26%) of Virginia's fourth grade students are reading Below Basic level, and that these students will not attain levels of achievement expected with No Child Left Behind. State and school district performance of students with disabilities on Virginia Standards of Learning (SOL) tests at various grade levels confirmed the NAEP reading data.

A large suburban Virginia school district, named Jefferson County for this study, was the context for this study. The Jefferson County Public Schools district includes approximately 58,600 students who attend 62 schools. Approximately 7,400 students with disabilities from ages 2 to 21 are provided special education services in Jefferson County, representing 12.4% of the total student population. The ethnic/racial student profile of Jefferson County Public Schools reflects 58% white, 28% Black, 8% Hispanic, 3% Asian/Pacific Islander, and 3% two or more races. Approximately 29.6% of students qualify for free or reduced-price lunch in elementary and middle schools. The context of this program evaluation will be the 38 elementary schools within the district.

The Jefferson County Public Schools reading achievement data were reviewed based upon state achievement data provided by the Virginia Department of Education (VDOE) that indicated consistent gaps in reading achievement over several years of results in Standards of Learning (SOL) Reading and English tests. Of note was the district's failure to reach the mandated levels of performance, Annual Measureable Objectives (AMO), for the subgroup of students with disabilities (SWD) in English and Mathematics. The AMO is the prescribed pass rate, or percent of students who must pass, that state, school districts, and each school must attain overall and for each subgroup. The performance of SWD below expected levels resulted in the district's failure overall to reach Adequate Yearly Progress (AYP) for the very first time in 2010, based upon 2009-10 student performance data. See Table 1.

Table 1.

Annual Measurable Objectives, Percent of Students Passing Assessments, Virginia 2007-2011

Annual Measurable Objective	SY 2007-08	SY 2008-09	SY 2009-10	SY 2010-11	SY 2011-12
English/Reading	77	81	81	86	91
Mathematics	75	79	79	85	90
Actual: All	90	92	91	91	
Actual: SWD	70	73	73	70	

Note. Adapted from Virginia Department of Education, *School District Report Cards*, (2011).

The Jefferson County school district data showed a continuous pattern of gaps in reading performance over five years (2007-08 through 2010-11), where the percent of students with disabilities passing the state Standards of Learning (SOL) English /Reading test remained approximately 20 points below the pass rate for all students. See Tables 1 and 2 for details.

Table 2

Jefferson County District English/Reading SOL Percent of Students Passing, with Annual Measurable Objective (AMO), by Grade, 2007-2010

Grade Level	SY 2007-2008 Pass Rate	SY 2007-2008 AMO	SY 2008-2009 Pass Rate	SY 2008-2009 AMO	SY 2009-10 Pass Rate	SY 2009-10 AMO	SY 2010-11 Pass Rate	SY 2010-11 AMO
Third								
All	87	77	89	81	87	81	87	86
SWD	72	77	75	81	68	81	66	86
Fourth								
All	91	77	91	81	90	81	89	86
SWD	75	77	77	81	76	81	72	86
Fifth								
All	94	77	95	81	93	81	93	86
SWD	78	77	83	81	79		79	86
Sixth								
All	88	77	88	81	89	81	89	86
SWD	65	77	66	81	69	81	67	86
Seventh								
All	89	77	91	81	92	81	91	86
SWD	62	77	70	81	73		66	86
Eighth								
All	87	77	90	81	92	81	92	86
SWD	60	77	63	81	71	81	67	86
High School								
All	95	77	96	81	95	81	96	86
SWD	77	77	81	81	78	81	76	86

Note. Adapted from Virginia Department of Education. *School District Report Cards* (2011).

In 2009, Jefferson County special education staff reviewed data including that summarized in Table 3 and determined that professional development for teachers of students with disabilities at the elementary level was needed to provide teachers with strategies to improve student reading achievement. While the school district implemented a programmed balanced literacy curriculum initiative in the 2008-09 school year, it became apparent through repeated conversations with special education teachers that they still needed additional training and resources to address the needs of students who

struggled with decoding skills. The balanced literacy model, even with supplemental materials funded by the Office of Special Education, did not include a structured, sequential, systematic method for teaching phonics to students struggling in reading. The district special education leaders researched programs that provided explicit, structured instruction in phonemic awareness, phonics, and word analysis strategies. These special education staff members reviewed the findings of the National Reading Panel, *Teaching Children to Read: An Evidence-Based Assessment of the Scientific Literature on Reading and Its Implications for Reading Instruction*, which provided evidence-based recommendations for five areas of reading instruction which included: 1) phonemic awareness, 2) phonics, 3) fluency, 4) vocabulary, and 5) comprehension (National Reading Panel, 2000). The panel found through a meta-analysis of reading studies, "that systematic phonics instruction produces significant benefits for students in kindergarten through 6th grade and for children having difficulty learning to read" (NICHHD, 2000). It was in the area of phonics instruction that district special education staff sought to strengthen instruction at the elementary level.

After several leaders and teachers attended local workshops provided by the Institute for Multisensory Education (IMSE) based in Northville, Michigan, the Jefferson County Public Schools special education leadership supported an initial district training of selected teachers by IMSE trainers in Jefferson County during spring 2009. After initial training, the district determined that providing multisensory reading strategy training to elementary teachers of students with disabilities was indicated and planned a series of training opportunities beginning in the summer of 2009. During the 2009-2010 and 2010-2011 school years, the school district provided special education teachers with

intensive professional development on multisensory reading strategies consistent with Orton-Gillingham approaches and expanded this training to include school-based elementary reading teachers. The school district contracted with the IMSE to provide these series of training activities. Each teacher participated in 30 hours of initial professional development provided by a trainer from IMSE over the course of a five-day intensive professional development. In addition, the district provided each teacher with the opportunity to attend a follow-up "refresher" day of training provided by the IMSE trainers in several scheduled sessions.

This intensive professional development experience trained teachers in a variety of multisensory reading strategies that are simultaneously visual, auditory, and kinesthetic-tactile to enhance student memory and learning of the basic structures of oral and written language (International Dyslexia Association, 2000). The International Dyslexia Association (IDA) noted that:

> Teachers who use this approach teach children to link the sounds of the letter with the written symbol. Children also link the sound and symbol with how it feels to form the letter or letters. As students learn a new letter or pattern (such as *s* or *th*), they carefully trace, copy, and write the letters while saying the corresponding sound. (IDA, 2000, p. 1)

Teachers and students rely on all three pathways of visual, auditory, and kinesthetic-tactile to enhance learning rather than relying upon sight word, phonetic, or memory methods in isolation. These methods stem from the research and practices of Dr. Samuel Orton, Anna Gillingham, and Bessie Stillman (IDA, 2000). Dr. Orton asserted that kinesthetic-tactile reinforcement of visual and auditory associations could correct the

tendency of people with dyslexia to reverse letters and transpose the sequence of letters while reading and writing.

Based upon review of reading research and student performance data, school district special education leaders determined that a program of reading instruction based upon the Orton-Gillingham multisensory reading strategy instruction provided the model upon which high incidence students with disabilities should receive needed instruction and remediation if they experienced challenges in learning to read related to specific weaknesses in decoding. These students include those students with specific learning disabilities, emotional disabilities, other health impairments, and mild intellectual disabilities, as explained later.

Problem

The Jefferson County school district has invested in professional development for over 300 elementary teachers of students with disabilities as well as 33 of the elementary reading specialists. The district utilized "Stimulus" funding through the American Recovery and Reinvestment Act of 2009 (ARRA) to supplement the district's Individuals with Disabilities Education Act (IDEA) federal grant. For the 2009-2010 and 2010-2011 school years, the district funded approximately $500,000 for training and instructional materials to support the implementation of multisensory reading strategies in all of its 38 elementary schools. The district provided continuing support for those trained through:

- providing refresher training for teachers who had participated in intensive multisensory professional development;
- coordinating "share-fair" activities where resources and ideas were shared among colleagues;

- establishing special education "literacy leaders," teachers who assumed leadership roles for multisensory reading instruction in each school;
- providing district leadership through the retention of a reading liaison position to coordinate this multisensory reading effort;
- collaborating with general education reading/language arts instructional leaders regarding the implementation of multisensory reading strategies in the context of the school district's balanced literacy initiative at the elementary level; and
- ensuring that all elementary special education liaisons participated in the 30 hour intensive training. Liaisons are central office staff who serve as resources to special education teachers in each school. With this training, the liaisons provide expanded capacity to support multisensory reading instruction.

The school district invested in these multiple training opportunities at a cost of approximately $800 per participant. In addition, the school district has invested over $29,000 in supplemental instructional materials and supplies to support each teacher's implementation of multisensory reading instruction in the school. While anecdotal information from teachers indicated many instances of immediate improvements in students' ability to decode words, there was evidence, based upon observation and consultation with teachers, of variation in the effective, consistent implementation of the multisensory reading strategies at the 38 elementary schools in Jefferson County. Some teachers were implementing some of the strategies and not others as evidenced by some teachers reporting an inability to provide the needed systematic multisensory reading instruction due to time constraints in the schools' class and special education services schedules. Others reported having difficulty providing discrete multisensory reading

strategy instruction due to constraints in the scheduling of the word study portion of the balanced literacy instructional model.

The district had a strong interest in understanding facilitating conditions and constraints that teachers and schools were experiencing in the provision of multisensory reading instruction for students with disabilities who struggle with decoding. The district had invested more than half a million dollars toward enhancing the reading instruction skill set of elementary teachers of students with disabilities. The district data reflected a need to ensure that student performance in reading as shown by student pass rates on the English/Reading Language Arts Standards of Learning Test demonstrate dramatic improvement. A program evaluation of the multisensory reading strategy initiative could assist the district toward understanding the underlying factors supporting and inhibiting effective implementation of multisensory instruction for elementary students with disabilities who struggle with reading. At this relatively early stage of implementation, the district could learn how best to sustain efforts in providing multisensory reading strategy instruction without the benefit of the level of funding that had been provided through ARRA. As a result, this researcher proposes to design and carry out an evaluation of the implementation of the multisensory reading strategy initiative.

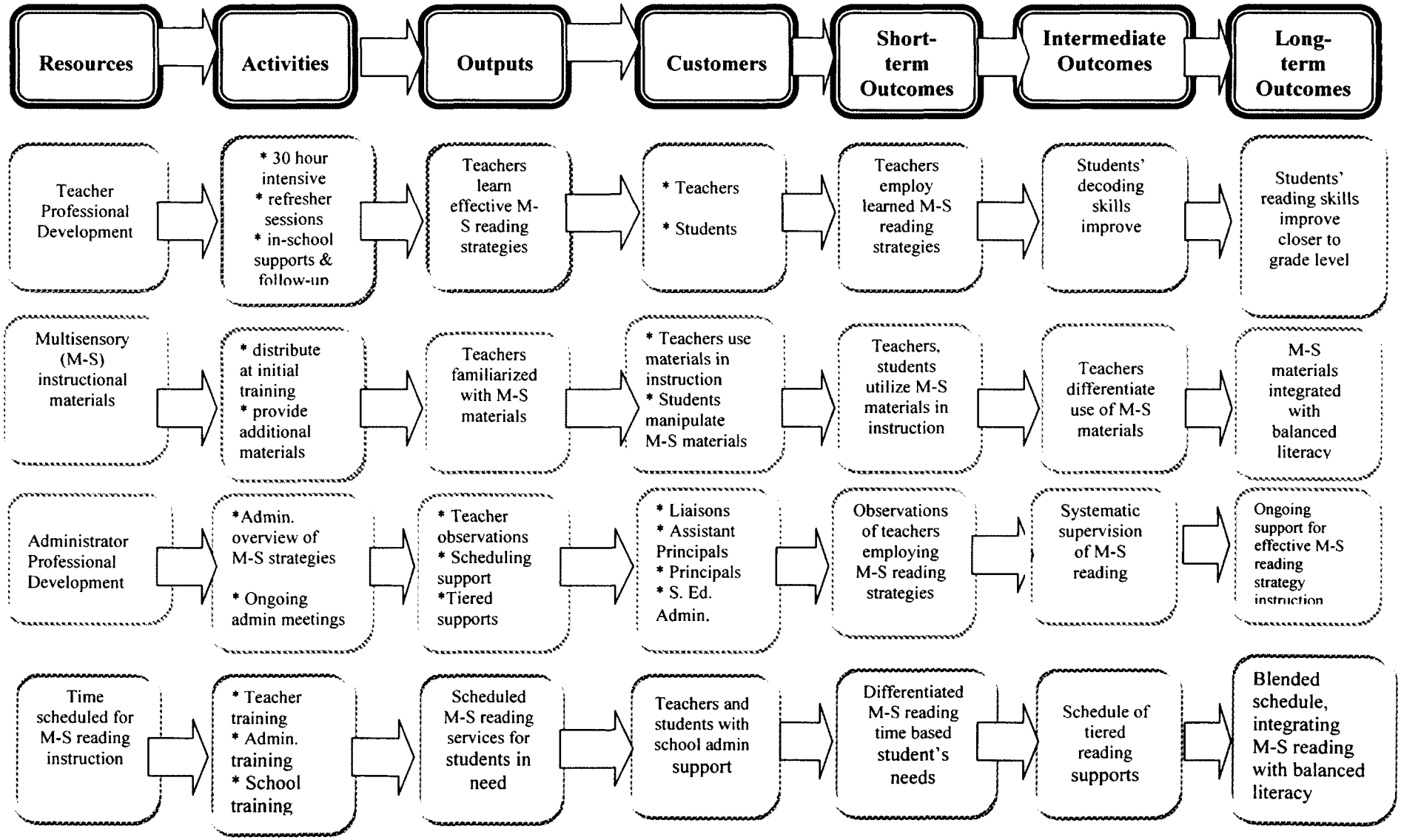
Program Evaluation Model. This program evaluation is considered formative in that it "seeks to collect information that will help program staff make mid-course corrections in the program design and/or delivery that will increase the probability of success" (Mertens & McLaughlin, 2004). Fitzpatrick, Sanders, and Worthen, (2011) have categorized models of program evaluation to include (a) expertise and consumer-oriented evaluation approaches, (b) program-oriented evaluation approaches, (c) decision-oriented

evaluation approaches, and (d) participant-oriented evaluation approaches. This program evaluation of multisensory reading strategy instruction is a program-oriented approach to evaluation that employs a logic model to analyze program resources, activities, outputs as well as short-, intermediate- , and long-term outcomes.

Logic Model. The logic model assists in conceptualizing, planning, and communicating with others about a program. "The logic model serves as a useful advance organizer for designing evaluation and performance measurement, focusing on the important elements of the program and identifying what evaluation questions should be asked and why and what measures of performance are key" (McLaughlin & Jordan, 2004, p.7). Logic models provide a schematic illustration of resources, activities, and outputs affecting participants aimed towards designated short-term, intermediate, and long-term outcomes. For the purposes of this program evaluation of the multisensory reading program in Jefferson County, the logic model resources included the intensive and ongoing training in multisensory reading strategies; the provision of instructional material resources to assist in multisensory reading instruction; the training of administrators and support staff to assist teachers with instruction; and the follow-up training with staff on necessary scheduling of class time to provide appropriate levels of multisensory reading instruction matched to student needs. Long-term outcomes include students reading closer to grade level, effective integration of multisensory instruction and materials within balanced literacy framework, and effective supervision and support for special education teachers providing multisensory instruction. The logic model in Figure 1 to analyzes the implementation of multisensory reading strategy instruction in Jefferson County Public Schools.

Figure 1

Logic Model – Implementation of Multisensory Reading Instruction, Jefferson County Public Schools



Evaluation Questions

1. What are the facilitating conditions and constraints in the Jefferson County school district's instructional initiative to provide multisensory reading strategy instruction for elementary students with disabilities?

2. What practices are in place to foster fidelity of implementation of multisensory reading strategies by teachers trained in these strategies?

3. To what extent is there fidelity of implementation and what factors may account for the variability in fidelity of implementation of multisensory reading strategies by teachers trained in these strategies?

4. To what extent is there a correlation between the level of implementation of the multisensory reading instruction and reading gain scores for students with disabilities?

Definition of Terms

Alphabetic principle – The principle that the written language system of English (and other languages) is based on the relationship between spoken sounds and written symbols and that each speech sound has its own graphic counterpart (Savage, 2001).

Balanced literacy – An organizational framework that allows teachers to cultivate in all students the skills and strategies reading, writing, speaking, and listening, effectively integrating shared reading, guided reading, independent reading, writing, and word study (Jefferson County Public Schools, 2008).

Blending – The process of putting discrete sounds together to form a word (Savage, 2001).

Comprehension – Making sense of what we read. Comprehension is dependent on good word recognition, fluency, vocabulary, worldly knowledge, and language ability (Birsh, 2005).

Decoding – A process of recognizing unfamiliar written words by sequentially segmenting the phonemes represented by the graphemes of the word and then by blending the phonemes into a familiar word (Liuzzo, 2010).

Encoding – A process of spelling where readers select the appropriate letter sequence for the sounds of written words (Savage, 2001).

Evaluation – The identification, clarification, and application of defensible criteria to determine an evaluation object's value in relation to those criteria (Fitzpatrick, Sanders, & Worthen, 2011).

Fidelity of implementation - The determination of how well an intervention is implemented in comparison with the original program design during an efficacy and/or effectiveness study (O'Donnell, 2008).

Fluency – The reading of text with speed, accuracy, and proper expression (National Reading Panel, 2000).

Focus group - The type of group interview where the interviewer facilitates discussion about a defined topic where the participants are free to talk with and influence each other in the process of sharing their ideas and perceptions (Gall, Gall, & Borg, 2003).

Gain score – An individual's score on a test administered at one point minus that individual's score on a test administered at an earlier time (Gall, Gall, & Borg, 2003).

Graphemes - A written letter or letter cluster representing a single speech sound (Birsh, 2005).

High incidence disabilities – The students with learning disabilities, emotional disabilities, mild intellectual disabilities, and other health impairment (primarily with attention deficit/hyperactivity) who make up approximately 70 % of the population of students with disabilities in the United States (Stichter, Conroy, & Kauffman, 2008).

Multisensory learning – Involvement of a learner's three major senses (visual, auditory, kinesthetic) in the learning process (Liuzzo, 2010).

Orthography - The total writing system of a spoken language (Liuzzo, 2010).

Phoneme - An individual sound unit in spoken words; the smallest unit of speech that makes one word distinguishable from another in a phonetic language such as English (Birsh, 2005).

Phonemic awareness - The awareness that spoken language consists of a series of phonemes (Ellery, 2005). The understanding that spoken words and syllables are made up of sequences of basic discrete speech sounds and the ability to manipulate those sounds (Savage, 2001).

Phonics – A teaching approach that gives attention to grapheme-phoneme correspondences in the teaching of reading and spelling (Liuzzo, 2005); a conscious, concentrated study of the relationship between sounds and symbols for the purpose of learning to read and spell (Savage, 2001).

Program – A set of planned, systemic activities using managed resources to achieve specified goals related to specific needs of identified participants in specified contexts with documentable outputs, following assumed systems of beliefs and investigable costs and benefits (Fitzpatrick, Sanders, & Worthen, 2011).

Reading - A complex process by which the reader brings graphic, phonological, orthographic, semantic, and syntactical knowledge along with general knowledge and personal experience to derive meaning from written and printed material (Liuzzo, 2010). Reading is the active process of reconstructing meaning from language represented by graphic symbols (Meyer, 2002).

Special education – Specialized instruction and related services provided to students found eligible according to state and federal special education laws and regulations. In this study, special education refers to the specialized instruction provided to students with a specific learning disability, an emotional disability, an other health impairment, or a mild intellectual disability. These areas of disability are considered "high incidence" disabilities because the majority of students receiving special education in school districts are identified with these disabilities (Friedlander & Peterson-Karlan, 2005).

Structural analysis – The process of determining the pronunciation and meaning of words by analyzing the structural elements of roots and affixes.

Survey research – The use of questionnaires or interviews to collect data about the characteristics, experiences, knowledge, or opinions of a population (Gall, Gall, & Borg, 2003).

Syllable – Combinations of phonemes that constitute larger sound units within words, consisting of single vowel sound or a combination of vowel and consonant sounds (Savage, 2001).

Syntax – Sentence structure. That part of grammar which addresses the function, patterns, and relations of words according to established usages (Liuzzo, 2010).

Summary

Reading skills are critical for student success in school. National reading performance data indicate that more than one third of students are at lower than basic levels of reading, with Virginia's rate at 26% below basic. States and localities are struggling to improve student achievement levels toward the 2014 target of 100% of all students passing Standards of Learning reading assessments. A large, suburban Virginia school district analyzed data indicating that student reading performance for students with disabilities was a key reason that the school district did not attain Adequate Yearly Progress as measured by standards of No Child Left Behind. Staff reviewed potential reading programs that could augment the school district's balanced literacy framework by providing multisensory reading strategy instruction based on Orton-Gillingham approaches. To address this problem, the district provided intensive and ongoing training for over 300 elementary special education teachers and over 30 elementary reading teachers, funded through the district's Individuals with Disabilities Education Act (IDEA) supplemental "Stimulus" grant funds provided by the American Recovery and Reinvestment Act (ARRA). The purposes of this formative program evaluation are to determine the facilitating conditions and the constraints that exist in the implementation of the multisensory reading initiative; to examine factors affecting the fidelity of implementation of the multisensory reading instruction; and to determine if students participating in the multisensory reading instruction demonstrated improved reading performance. Determining the answers to these questions will provide the district some recommendations that will assist efforts to provide effective reading instruction resulting in improved reading outcomes for students with disabilities. Chapter 2 will include a review of literature pertaining to the importance of reading and reading instruction that focuses on phonemic awareness and phonics development through multisensory reading strategies.

CHAPTER 2

Review of the Literature

This chapter provides a review of literature that focuses on key points relevant for this program evaluation and supports the purpose of the program evaluation. A thorough understanding of the importance of reading achievement is needed within the context of accountability measures included in No Child Left Behind (2001) as well as the purposes, models, and guidelines for program evaluations relevant for this study. While many view it as unrealistic, the target goal of 100% students performing at grade level in reading and math by 2014 is challenging school districts across the country to embrace evidence-based instructional initiatives to improve student reading achievement. In 2000 the National Reading Panel (NRP) made recommendations pertaining to five areas of reading instruction: phonemic awareness, phonics, fluency, vocabulary, and comprehension (NICHD, 2000).

Relevant to the purpose of this program evaluation is an understanding of phonics instruction, the basis of multisensory reading instruction. The National Reading Panel summarized results of their meta-analysis, concluding that explicit systematic instruction in phonics "produces significant benefits for students in Kindergarten through sixth grade and for children having difficulty learning to read" (National Reading Panel, 2000). Specifically related to phonics instruction is the research basis for multisensory reading instruction utilizing an Orton-Gillingham approach that the Institute for Multi-Sensory Education (IMSE) employs. This chapter summarizes the research literature regarding reading achievement, NCLB accountability, the National Reading Panel's report, phonics instruction, and the multisensory approach to reading instruction.

The Importance of Reading Achievement

Data from the National Center for Educational Statistics (NCES) confirms that overall reading levels for students in the United States have remained relatively level over the past 20 years (NCES, 1999). As discussed in Chapter 1, 34% of fourth graders in America were reading at a Below Basic level according to the 2009 administration of the National Assessment of Educational Progress (NAEP) reading assessments (NCES, 2009). In Virginia, this Below Basic level of reading performance included 26% of Virginia fourth graders that year. A review of NAEP data reveals that the number of Virginia fourth graders at Proficient or Advanced levels has not grown much since 2002, from 37% to 38%. As Table 3 illustrates, the percentage of fourth grade students at Basic levels of reading performance has not shown significant growth since 1992 (NCES, 2009).The gap between reading achievement of fourth grade students without disabilities and fourth grade students with disabilities has remained steady since accommodations were permitted on the test in 2002.

Table 3.

National NAEP Data: Fourth Grade Reading Scale Score Average

	Non-SWD	SWD	Gap
2002	221	187	34
2003	221	185	36
2005	222	190	32
2007	224	191	33
2009	224	190	34

Note. (NCES, 2009).

With more than a third of 4th graders reading below basic levels, the need to improve reading performance for all students remains. As the continuing reading gap between students without disabilities and those with disabilities demonstrates, the need to improve reading performance for students with disabilities is important.

Jimerson and Kaufman (2003) note that reading is clearly among the essential skills that influences later knowledge acquisition and school success. In their analysis, these authors note that retained students usually have lower achievement, particularly in reading and language arts, than their peers who are promoted. These authors focus on the negative impact of student retention. Their solutions include early reading programs that assist students in decoding and the provision of opportunities to practice reading in small groups of students utilizing direct instruction strategies.

Shaywitz (2005) notes that while good and poor readers gain in reading skills, the gap between them remains the same over time. Shaywitz refers to the "Matthew effect," a biblical reference from the book of Matthew, where advantage accumulates and leads to further advantage; and disadvantage is accentuated over time. Shaywitz's analysis of the Connecticut Longitudinal Study showed that even though one-third of the struggling readers were receiving additional reading support, this help was often erratic and occurred sporadically. Poor readers received help for limited periods of time from "well-meaning, but untrained teachers and with methods that did not reflect state-of-the-art, evidence-based instructional" (Shaywitz, 2005, p. 34). Shaywitz and others note that closing the gap with students who are already poor readers will require intensive, high-quality instruction of sufficient duration, as much as 50 – 300 hours, or over 90 minutes per day to make progress closing reading achievement gaps. Effective early intervention programs for struggling readers include these essential components:

- systematic and direct instruction in:
  - phonemic awareness
  - sounding of words (decoding)
  - spelling
  - reading sight words
  - vocabulary
- practice in applying these skills in reading and writing
- fluency training
- enriched language experiences where there is the listening to, talking about, and telling stories (Shaywitz, 2005).

The Report of the National Reading Panel

In 2000, the National Reading Panel, convened by the National Institute of Child Health and Human Development, issued its report, *Report of the National Reading Panel: Teaching Children to Read: An Evidence-Based Assessment of the Scientific Research Literature on Reading and Its Implications for Reading Instruction: Reports of the Subgroups* (NICHD, 2000). The National Reading Panel was charged with assessing the status of research-based knowledge regarding reading instruction and with evaluating the effectiveness of various approaches to teaching children to read (NICHD, 2000). The National Reading Panel (NRP) studied the following topics:

- alphabetics, including phonemics awareness and phonics instruction
- fluency
- comprehension, including vocabulary instruction, text comprehension instruction, and comprehension strategies instruction
- teacher education and reading instruction

- computer technology and reading instruction.

Based upon these topics and subtopics, the panel organized work subgroups to provide detailed studies and recommendations. The NRP established a set of rigorous research methodological standards to be included by each subgroup in screening reading research. All research was screened to include only high quality experimental or quasi-experimental research studies, limiting the acceptable research to "a small fraction of the total reading research literature meeting the Panel's standards for use in the topic analyses" (NICHD, 2000, p. 1-5). The studies were dedicated to those that documented reading growth in the following categories: decoding, pseudo words, word identification, spelling, oral reading, comprehension, and general reading (Garan, 2002, p. 15). The NRP provided executive summaries and full reports of findings and recommendations for the six topics and subtopics covered. Several of the findings and recommendations of the NRP are critical to the consideration of multisensory reading instruction as a strategy to improve reading skills.

The NRP and phonemic awareness instruction. The NRP study of phonemic awareness (PA), the ability to focus on and manipulate phonemes, the smallest units of spoken language, concluded that PA instruction was "highly effective across all literacy domains and outcomes" (NICHD, 2000, p. 2-3). The collection of research indicated that the teaching of PA in small groups and that the provision of between 5 and 18 hours of this instruction was optimal. Phonemic awareness instruction described in the report included activities of: phonemic isolation, phoneme identity, phoneme categorization, phoneme blending, phoneme segmentation, and phoneme deletion (NICHD, 2000, p. 2-3). PA instruction had positive effects on word reading and pseudo word reading and was effective in boosting reading comprehension (NICHD, 2000, p. 2-5). What was surprising to the panel was how significant the benefit of PA instruction was, helping diverse subgroups of children

with vocabulary, word knowledge, and memory for text. This included normally developing readers, disabled readers, children in pre-school through 6th grade, children across SES levels, and children learning English as a second language (NICHD, 2000. p. 2-5). While PA did not improve the spelling skills of disabled readers (NICHD, 200, p. 2-6), the panel noted that "adding a well-designed PA instruction to a beginning reading program or a remedial reading program is very likely to yield significant dividends in the acquisition of reading and writing skills" (NICHD, 2000, p. 2-7).

The NRP and phonics instruction. The NRP also summarized research on phonics instruction, the conscious, concentrated study of the relationship between sound and symbols for the purpose of learning to read (Savage, 2001). The panel sought answers to the following questions:

- Does systematic phonics instruction help children learn to read more effectively than nonsystematic phonics instruction or instruction teaching no phonics?
- Are some types of phonics instruction more effective than others? Are some specific phonics programs more effective than others?
- Is phonics instruction more effective when students are taught individually, in small groups, or as a whole group?
- Is phonics instruction more effective when it is introduced in Kindergarten or 1st grade to non-reading students or in later grades after students have begun to read?
- Is phonics instruction beneficial for children who are having difficulty learning to read? Is it effective in preventing reading failure among children who are at risk for developing reading problems in the future? Is it effective in remediating difficulties among children who have not made normal progress in reading? (NICHD, 2000).

The NRP concluded that systematic phonics instruction makes a bigger impact on reading achievement than unsystematic or no phonics instruction (NICHD, 2000). Various types of systematic phonics approaches are significantly more effective than non-phonics approaches in promoting reading achievement. The seven types of systematic phonics studied, including Orton Gillingham methodologies, did not differ significantly from each other in their effectiveness. Effect sizes indicated that individual, small group, and whole class settings were all effective delivery systems of systematic phonics instruction (NICHD, 2000, p. 2-93). The NRP also concluded that phonics instruction provided earlier (1st grade or sooner) was much more effective than phonics instruction provided after first grade. It is important to note, however, that phonics instruction provided to 2nd through 6th graders who were low achieving readers "failed to exert a significant impact on the reading performances" (NICHD, 2000, 2-94), noting that further research was needed in this area of remediation for struggling readers. Regarding classroom implementation of phonics instruction, the NRP report noted the systematic phonics instruction should be a component of a balanced reading program, not serve as the total reading program.

The NRP received criticism, however, from several researchers and practitioners including Garan (2002), Yatvin (2000), and Stevens (2003), who expressed concerns regarding the Panel's research methodology and recommendations with respect to reading instruction. Yatvin documented the sole minority view included in the NRP Report of the Subgroups, noting that "the Panel chose to conceptualize and review the field narrowly,... excluding any inquiry into the fields of language and literature" (NICHD 2000, Appendix A). Dr. Yatvin advocated for further research on language development, pre-reading literary knowledge, understanding the conventions of print, as well as early childhood experiences that prepare children to read. As one of two school practitioners on the 14 member NRP, Dr.

Yatvin expressed concern that the NRP did not complete its task to address all of the models of reading instruction (NICHD, 2000 Appendix A). Meyer (2002) also criticized the conclusions that reading should focus on discrete decoding skills, noting the limitations of phonics rules. His more holistic, personalized perspective on reading counters the reductionist view of reading as a set of discrete connections of phonemes and graphemes: "Reading is what happens when written words begin to live in the mind, heart, relationships, spirit and world of someone engaging with text" (Meyer, 2002, p. 26). Garan (2002) also criticized the NRP's focus on "research on isolated skills ignored the complexities of the reading process, as well as the incredible complexities of real children in real classrooms." However, in the quest for accountability under No Child Left Behind, states and school districts adopted materials and strategies in alignment with major recommendations pertaining to phonics-based approaches in learning to read.

The NRP and phonics instruction for students with disabilities. The National Reading Panel noted that, "Phonics also improved the reading performance of disabled readers (i.e., children with average IQs but poor reading) for whom the effect size was d = 0.32" (NICHD, 2000, p. 2-133). Systematic phonics instruction is significantly more effective than non-phonics methods of instruction in not only preventing reading difficulties, but also remediating reading difficulties with disabled readers (NICHD, 2000). Birsh summarized similar research conclusions about systematic phonics instruction and students with disabilities. "It is clear that systematic phonics has its greatest impact in the early grades, that is, in kindergarten and first grade for all beginning readers, children at risk, and children diagnosed with reading disabilities" (Birsh, 2005, p. 6).

No Child Left Behind – Accountability for Student Reading Performance

As noted earlier, the accountability measures for student reading performance in Virginia are based upon Annual Measurable Objectives (AMO) that have been approved by the U.S. Department of Education. The Elementary and Secondary Education Act (ESEA), also known as The No Child Left Behind Act (NCLB) in the 2001 reauthorization, provided dramatic changes in accountability and its emphasis on reading, unlike prior re-authorizations. Under No Child Left Behind, the U.S. Department of Education professed these four pillars that would help transform the federal role in education:

- Strong accountability for results. NCLB required student achievement testing, closing of achievement gaps for subgroups of students, state and district "Report Cards" that publicly shared accountability outcomes and included consequences for schools/districts and states not meeting benchmarks.
- Greater freedom for states and communities. The grants under NCLB were planned with greater flexibility to transfer up to 50% of federal formula grants under sub-grant categories to one or more of the other sub-grant categories.
- Proven educational methods. The grant funds would support education programs and practices that had been proven effective through rigorous scientific research. The federal definition of "scientifically based research" would play a critical role in the discussion of reading and reading interventions in the Report of the National Reading
- Panel (2001) and in requirements for Reading First and Early Reading First grant awards.
- More choices for parents. NCLB described options parents would have if their child's school failed to meet state achievement standards. These options included supplemental educational services, tutoring, after school services, summer school,

and school choice, where parents may elect to send their children to a different school. (USDOE, NCLB, 2002)

NCLB required states to establish annual objectives for improving student achievement, with the goal of ensuring all students have an opportunity to obtain a high-quality education. Schools, school districts, and states may achieve "Adequate Yearly Progress" status if they meet these objectives. The ESEA required:

- annual testing in grades 3 – 8 and at least once in high school to measure student progress in reading and mathematics;
- science testing of all students at least once in elementary, once in middle school, and once in high school;
- schools, school districts, and states to meet annual objectives for Adequate Yearly Progress (AYP) for student performance on statewide tests in reading and mathematics;
- identification of states, schools, and school districts making and not making AYP; and
- all students to be proficient in reading and mathematics by 2013-14. (Virginia Department of Education, 2010).

A key part of NCLB was the Reading First Program, the purpose of which was to ensure that all children in America learn to read well by the end of third grade. Reading First was the academic cornerstone of No Child left Behind, establishing grant funding for state and school district initiatives to establish research-based reading programs for students in kindergarten through third grade. The Reading First Program, in Part B of Title I of NCLB (also known as the Elementary and Secondary Education Act (ESEA)) required scientifically

based reading instruction in the five components of effective reading instruction. Reading First addresses these specifically:

To ensure that children learn to read well, explicit and systematic instruction must be provided in these five areas:

1. Phonemic awareness. The ability to hear, identify and manipulate the individual sounds, phonemes, in spoken words. Phonemic awareness is the understanding that the sounds of spoken language work together to make words.
2. Phonics. The understanding that there is a predictable relationship between phonemes, the sounds of spoken language, and graphemes, the letters and spellings that represent those sounds in written language. Readers use these relationships to recognize familiar words accurately and automatically and to decode unfamiliar words.
3. Vocabulary development. Development of stored information about the meanings and pronunciation of words necessary for communication. There are four types of vocabulary:
    - listening vocabulary
    - speaking vocabulary
    - reading vocabulary
    - writing vocabulary
4. Reading fluency, including oral reading skills. Fluency is the ability to read text accurately and quickly. It provides a bridge between word recognition and comprehension. Fluent readers recognize words and comprehend at the same time.

5. Reading comprehension strategies. Strategies for understanding, remembering, and communicating with others about what has been read. Comprehension strategies are sets of steps that purposeful, active readers use to make sense of text. (USDOE, 2002)

Reading First defined scientifically based reading research to include research that:

- 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 valid data across evaluators and observers and across multiple measurements and observations; and
- has been accepted by a peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective and scientific review (USDOE, 2002).

States applied for Reading First grant funds by developing a plan to address how they would support school districts in: identifying reading assessments with proven validity and reliability; identifying scientifically-based materials and programs; describing how professional development activities supported with Reading First funds would effectively improve instructional practices for reading; describing how funded activities would help teachers and other instructional staff to implement the essential components of reading; describing the process by which the state would make competitive grants to eligible local educational agencies; and describing how the state would assess and evaluate the effectiveness of the activities carried out under the program on a regular basis. Early Reading First was another NCLB Title I initiative. This initiative was designed to support the development of early childhood centers of excellence that focus on all areas of development,

especially on the early language, cognitive, and pre-reading skills that prepare children for continued school success and that serve children primarily from low-income families. Early Reading First grants were designed to help early childhood centers improve their programs by creating centers of excellence that provide preschool-age children with language skills and cognitive skills and an early reading foundation. Funds were to be used to:

- "enhance children's language, cognitive, and early reading skills through professional development for teachers;
- provide early language and reading development and instructional materials stemming from scientifically based reading research;
- provide preschool-age children with cognitive learning opportunities in high quality language and literature-rich environments;
- use screening assessments to effectively identify preschool children who may be at risk for reading failure; and
- improve existing early childhood programs by integrating scientifically based reading research into all aspects of the program (including instructional materials, teaching strategies, curricula, parent engagement, and professional development)" (USDOE, 2002, p. 1).

Reading First and Early Reading First grant awards were distributed to states with approximately $1 billion budgeted for each year from 2002 through 2007. Early Reading First funding grew gradually from $ 75 million in 2002 to almost $113 million in 2008.

This information documents a chief commitment by the federal government, along with state and local governments to support scientifically-based reading interventions for students as a core component of the reauthorization of the Elementary and Secondary Education Act, better known as No Child Left Behind. Stevens (2003) took issue with the

U.S. Department of Education's particular focus on reading in its Reading First initiative, noting that while some NCLB documents illustrate a comprehensive view of reading that included all five components of reading, the emphasis in Reading First workshops, follow-up literature, and discourse appeared to focus on scripted phonics programs as the preferred "reading program." It is within the context of federal government support of explicit phonics reading instruction and the increasingly rigorous accountability measures of NCLB that Jefferson County special educators researched phonics programs to supplement the county's balanced literacy initiative to address the needs of students with disabilities who had not demonstrated reading success.

Phonemic Awareness and Phonics Instruction

Phonemic awareness is the awareness that spoken language consists of a series of individual units of sound, called phonemes (Ellery, 2005). It is the understanding that spoken words and syllables are made up of sequences of basic discrete speech sounds and the ability to manipulate those sounds (Savage, 2001). Phonemic awareness includes the following skills:

- rhyming: recognizing and producing words that rhyme;
- segmentation: the ability to break words into their component sounds;
- isolation: the ability to identify individual sounds in words;
- deletion: the ability to delete sounds from words;
- substitution: the ability to make a new word by replacing one sound for another; and
- blending: the ability to identify a word based upon hearing the discrete sounds that make up the word.

These phonemic awareness skills that can be taught and reinforced are the foundation of the attainment of reading skills (Savage, 2001).

Phonics is the conscious, concentrated study of the relationship between sounds and symbols for the purpose of learning to read and spell (Savage, 2001). Reading instruction that includes explicit systematic instruction in phonemic awareness and the sound-symbol relationships in phonics have been shown to make a bigger impact on students' growth in reading than non-systematic phonics instruction or no phonics instruction at all (NRP, 2002). Phonics instruction taught early, during or before first grade, had greater positive effects than phonics instruction in later grades (NICHD, 2000). While not highlighted in the Executive Summary of the NRP, the panel did conclude in its full report that systematic phonics instruction "should be integrated with other reading instruction to create a balanced reading program" (NICHD, 2000). Another NRP conclusion that was not highlighted in the Executive Summary was that, "Phonics should not become the dominant component in a reading program, neither in the amount of time devoted to it nor in the significance attached" (NICHD, 2000).

Others concurred, including Savage (2001), who wrote a concise book, *Sound it out! Phonics in a Balanced Literacy Program*, tracing the history of phonics instruction in the teaching of reading and providing strategies for integrating phonics instruction into a balance reading program, as the NRP also endorses. Savage took a more pragmatic approach, noting that a majority of teachers embraced a balanced, eclectic approach to elementary reading instruction by including both phonics and more whole-word and whole language approaches (Savage, 2001). He cited research that confirmed that most teachers do not take sides in the "reading wars" between phonics and more meaning-based approaches, but used strategies from both to provide comprehensive reading instruction for elementary students.

The rationale for phonics is rooted in the alphabetic basis of the English language, that individual letters and groups of letters are attributed specific sounds. Phonics instruction, however, is not sufficient on its own as a comprehensive reading program because the chief purpose of reading is the construction of meaning, and pronunciation does not assure comprehension (Savage, 2011). Phonics instruction can be synthetic or analytic. Synthetic phonics presents the parts of the language and teaches isolated sound-symbol relationships and how the parts work together to form whole words. This part-to-whole method teaches isolated sounds, reinforces their learning, and then teaches the blending the learned, isolated sounds into syllables and words. Synthetic phonics builds reading skills through discrete phonics elements that children need to decode or encode written language. These elements include:

- consonants: sounds made with maximum interference in the vocal tract, e.g. *l* as in lip;
- consonant diagraphs: consonant combinations making one discrete sound, e.g. *ch* as in chip;
- consonant blends: consonant combinations making two distinct sounds as in *bl* for blend;
- silent letters: words having letters that make no sound;
- vowels: sounds made with minimum of interference in the vocal tract, including *a, e , i, o, u*; and syllables – combinations of phonemes that make up larger sound units of words (Savage, 2001).

Analytic phonics, on the other hand, presents the whole word in text and demonstrates how it can be broken down into parts (Birsh, 2005). Students can read passages, sounding out words and learning phonics through patterns learned in reading.

Isolated sounds are not the building blocks of reading as they in synthetic phonics. Birsh and Savage agree that phonics instruction should include both synthetic and analytic phonics methods and should be taught in a literature rich context. The NRP concurred that phonics instruction includes many varieties as noted in the summaries of 38 studies acceptable to the NRP, even though the study emphasized synthetic approaches to phonics.

Multisensory Structured Language Instruction

Multisensory learning activities include techniques for linking visual, auditory, oral, kinesthetic and tactile modalities in learning (Moats & Farrell, 2005, p. 24). Gillingham and Stillman (1997) articulated the origins of multisensory approaches to the teaching of reading to students with reading disabilities. "When a child of normal or superior intelligence and intact sensory perception has been instructed in reading by the whole-word/sight word method by a competent teacher for months or years and has not acquired adequate reading skills, it is time for a radical change in approach" (Gillingham & Stillman, 1997). The authors recommend daily, systematic, highly structured, multisensory instruction using an alphabetic/phonic approach for those students who had not been successful readers when taught via other less structured approaches.

Dr. Samuel Orton and his colleagues began using multisensory methods in the 1920's, suggesting that kinesthetic and tactile modalities serve to reinforce visual and auditory associations in reading instruction. Dr. Orton hypothesized that students with significant reading problems, including dyslexia, have poorly developed brain pathways connecting phonological (speech sound) and orthographic (written symbol) functions (IDA, 2009). Multisensory instruction provided to children with dyslexia could strengthen pathways and correct the tendency of letter reversals and transposed letter sequences in these students' reading and writing (International Dyslexia Association (IDA), 2009).

In their teacher manual first published in 1936, Anna Gillingham and Bessie Stillman adapted Dr. Gillingham's multisensory approaches to the teaching of reading, spelling, and writing, refining what is now referred to as the "Orton-Gillingham approach" (IDA, 2009). The Orton-Gillingham methods employ synthetic phonics, or the practice of linking isolated sounds with letters, which embodies the alphabetic approach. Building words from the blending of various isolated sounds is the basis for synthetic phonics. The Orton-Gillingham methods build a close association between the print the student sees (visual modality), what the students hears (auditory modality), and what the students feels (kinesthetic or tactile modality) as the large/small muscle movements or touch sensations become involved, "phonogram (representation of a sound) is presented through each association (visual, auditory, kinesthetic), and each association is linked and presented simultaneously" (Gillingham & Stillman, 1997). Figure 2 illustrates the associations among the sensory modalities in multisensory language instruction.

Figure 2. Multisensory Language Triangle

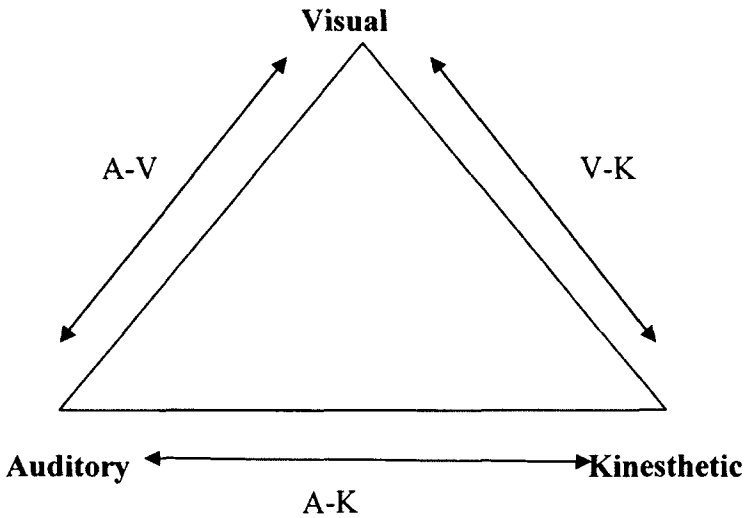


Figure 2. Multisensory language triangle. Adapted from *The Gillingham manual: Remedial training for children with specific disability in reading, spelling and penmanship* (8th ed.), p. 30, by A. Gillingham and B. Stillman. Copyright 1997 by Educators Publishing Service.

Other researchers confirmed the findings of Gillingham-Stillman and others, documenting the positive effects of multisensory strategies in reading instruction. Joshi, Dahlgren, and Boulware-Gooden (2002) completed a study of Orton-Gillingham multisensory instruction of first graders in an urban school district. They reported that students mastered phonetic awareness and spelling skills at higher levels through this method than through an embedded phonics approach. Embedded phonics approaches use predominately implicit literature-based opportunities to build phonics skills as opposed to discrete, systematic phonics instruction explicitly taught.

Birsh (2005) outlined components of multisensory structured language education, categorized by the content of instruction (the what) and by the principles of instruction (the how):

Multisensory Structured Language Education

The content of instruction.

- phonology and phonological awareness: knowledge of and manipulation of the sounds of words;
- sound-symbol association: attributing symbols to sounds;
- syllable instruction: discrete teaching of six types of syllables;
- morphology instruction: teaching of roots, suffixes and affixes;
- syntax: the set of principles that determine the sequence of words in a sentence; and
- semantics: comprehension of the meaning of text.

The principles of instruction.

- simultaneous, multisensory VAKT: teaching through several pathways in the brain (visual, auditory, kinesthetic, tactile);

- systematic and cumulative: a sequential, logical order from simpler to more complex;
- direct instruction: teacher-directed learning;
- diagnostic teaching: continual assessment and teaching to mastery (automaticity); and
- synthetic and analytic instruction: synthetic instruction is from parts to the whole while analytic works from the whole to the parts (Birsh, 2005, p.15).

Orton-Gillingham Reading Instruction for Students with Disabilities

It is important to analyze research on the provision of O-G reading strategy instruction as it pertains to students with disabilities. Ritchie (2006) reviewed literature that included twelve studies of O-G and OG-based reading instruction programs in an effort to summarize empirical evidence that may suggest that this instruction meets the requirements of scientifically-based reading instruction based upon No Child Left Behind and Reading First mandates. These studies included elementary students, adolescents, and college students. One of the studies involving students with disabilities by Foorman (1997), showed that synthetic phonics instruction using Alphabetic Phonics "significantly out-performed analytic phonics instruction for phonological processing, orthographic processing, and word reading; Alphabetic Phonics instruction was superior to sight word instruction for phonological processing and word reading, but not for orthographic processing" (Ritchie, 2006, p. 174). Ritchie also described a second study involving students with disabilities by Westrich-Bond (1993) that compared OG instruction to that of Ginn basal reader instruction in the two settings of special education self-contained room and resource room. While significant gain scores were noted, there were no significant differences between the two instructional conditions, that is, the basal reader versus OG (Ritchie, 2006).

Ritchie (2006) noted the paucity of OG studies that included experimental or quasi-experimental designs and emphasized that variations of setting, participants, implementation fidelity, scope of training, and variability of OG methods as factors that limit generalizations. She noted that further research to examine the relative effectiveness of OG instruction was warranted. The What Works Clearinghouse (WWC) (2010) noted that "no studies of unbranded Orton-Gillingham-based strategies that fall within the scope of the Students with Learning Disabilities review protocol meet What Works Clearinghouse (WWC) evidence standards" (U.S. Department of Education, 2010, p. 1). Despite the limited scientific evidence, OG approaches continue to be provided for students with disabilities and others (Ritchie, 2006).

The Institute for Multisensory Education

The Institute for Multisensory Education (IMSE) was founded in 2003 as a resource to provide educational professionals with tools for providing multisensory reading strategy instruction (IMSE, 2010). IMSE embraces the provision of sequential, cumulative, direct, and multisensory language instruction, modeled on O-G, and combined with a reading language arts program rich with literature. The IMSE Teacher Training Manual describes the research base for code-emphasis, multisensory methods as a complement to school districts' established reading programs. Many advocates of direct, explicit, systematic phonics instruction have documented the 1967 summary of research provided by Jeanne Chall in *Learning to Read: The Great Debate*. As noted earlier, Chall's review of reading research concluded that "Beginning reading programs that emphasized decoding or phonics, the direct and systematic focus on the system that maps print to speech and the opportunity to practice learning that system in the context of reading were much more effective than those that used meaning based approaches" (Chall, 1967). IMSE's review of research included the National

Reading Panel's summary of research supporting explicit, direct, sequential instruction in sound-symbol relationships. The IMSE manual also cites the NRP research supporting the Orton-Gillingham approaches to the teaching of phonics with multisensory methods (Liuzzo, IMSE, 2010).

Liuzzo (2010) outlined five key components of the IMSE reading program. The first part begins with the "Three-Part Drill" that employs visual, auditory, and kinesthetic pathways beginning with visual instruction of phonemes, followed by auditory/tactile instruction involving hearing and touch. The third part of the three-part drill involves direct teacher instruction employing a flip chart/blending board (Waldvogel, 2010). Following the three-part drill, the second lesson component involves the teaching of a new phoneme rule or concept using a multisensory strategy, such as finger-tapping. Finger-tapping is a kinesthetic strategy where students "tap out" phonemes with the fingers of their non-writing hand, assisting with learning sound-symbol relationships. The third component of the IMSE program involves the student engagement in decoding and learning centers to practice decoding multi-syllabic words to improve vocabulary and dictionary skills. Remediation of students who need more reinforcement of skills takes place here. The fourth component of the program teaches students non-phonetic and high frequency words, which Liuzzo refers to as "Red Words" (Liuzzo, 2010). The fifth component involves comprehension using controlled readers and exposure to other literature. The IMSE model involves the use of reciprocal teaching to assist students with comprehension (IMSE, 2010).

The outline of the five components of the IMSE model of the Orton-Gillingham lesson plan is as follows:

I. Three-Part Drill

    A. Visual

B. Auditory/Kinesthetic

C. Blending

II. Teaching a New Concept

A. Multisensory Experience

B. Application of New Concept

1. Write words – finger-tapping

2. Write sentences – pounding syllables

III. Decoding and Learning Centers

A. Decoding multi-syllabic words

B. Phonemic awareness

C. Vocabulary

D. Fluency

IV. Red Words

A. Review of learned red words

B. Introduction of new red words

V. Comprehension

A. Reciprocal reading

B. Oral reading

The authors note that not every component of the instructional plan would occur every day, but these essential components would be emphasized in structured lessons over the course of a school week.

IMSE utilizes finger-tapping, pounding, and writing letters in sand and on textured plastic grids as kinesthetic techniques. Finger-tapping involves the student verbally sounding out the phonemes in a word, using his/her non-writing hand to tap thumb to successive

fingers, left to right, one finger per phoneme. For example, the word "big" has three phonemes /b/, /i/ ,/g/, so the student would tap out three phonemes while saying the phonetic word. Pounding is used to focus on syllables, similar to finger-tapping for phonemes. A student would lightly pound his or her non-writing fist to sound out the syllables of each word. For example, "kitten" would require two pounds for the two syllables. In multisensory teaching, the teacher models these kinesthetic techniques as he or she assists students with words and sentences. Another kinesthetic strategy is having students write letters or words with their fingers in a tray of sand (Liuzzo, 2010).

IMSE recognizes that structured systematic phonics instruction should take place within the context of a balanced literacy approach, rich with literature and other reading strategies that are not provided in isolation. Many students can benefit from implicit instruction in reading without discrete, explicit phonics instruction. Liuzzo asserts that research reveals that up to 70 percent of students learn to read implicitly, intuitively seeing patterns, analyzing words, phrases, and sentences based upon prior knowledge and exposure to print (Liuzzo, 2010). The IMSE asserts that some students are not successful learning implicitly to read and require explicit, sequential, systematic teaching of phonemic awareness and phonics that allows much review and practice. The ability to provide training to special education teachers in sequential, systematic multisensory reading strategies that would be compatible with the Jefferson County school district's balanced literacy program for reading and language arts was attractive to district special education leaders.

The Jefferson County Elementary Reading Curriculum and Instruction

Jefferson County Public Schools (JCPS) refined and disseminated a balanced literacy curriculum and instruction model beginning in the fall of 2008 and provided kindergarten

through fifth grade teachers training in this structured approach to elementary reading and language arts instruction aligned with Virginia Standards of Learning. Reading /language arts instruction in this balanced literacy model was planned for 2.5 hours per day in the K-2 classes and 2 hours per day in grades 3-5. The JCPS elementary language arts specialist and literacy coaches developed a research-based literacy model that included three key components: Reading Workshop, Words Workshop, and Writing Workshop.

Reading Workshop. Reading Workshop includes 20-30 minutes daily of Shared Reading where the teacher would use a common text to anchor students' thinking and learning as he or she would model reading strategies and skills for the whole class. The second part of Reading Workshop provide Guided Reading activities for differentiated, small groups of students with similar reading skills where they were matched to books based upon reading level, student interest, and developmental needs. The teacher introduces the text, helps set the purpose for reading and anticipates challenging vocabulary to discuss, activate, and build students' background knowledge to encourage student independent reading. From kindergarten through grade 2, the Guided Reading time is 60 minutes, reduced to 30-40 minutes in grades 3-5.

Words Workshop. Words Workshop involves developing a "Word Wall" of new words in grades K-2 that includes skill development with phonemic awareness and phonics activities. In K-5, structured word study activities take place with "hands-on activities that mimic basic cognitive learning processes: comparing and contrasting categories of word features and discovering similarities and differences within and between categories" (Bear, Invernizzi, Templeton, & Johnston, 2008). Here weekly "word sorts" occur with small groups of students using phonemic awareness and phonics skills to find ways to sort written

words and see patterns and similarities as the words are grouped together. The school district resource and model is derived from *Words Their Way: Word Study for Phonics, Vocabulary and Spelling Instruction*, by Bear, Invernizzi, Templeton, & Johnston, (2008). Total daily class time for Word Study is 20-30 minutes in K-2 and 15-30 minutes in grades 3-5 (JCPS, 2008).

Writing Workshop. The Writing Workshop includes 30-45 minutes where teachers model procedures, skills and strategies for writing during a mini-lesson. In this whole class part, the teacher uses interactive writing, thinks aloud while writing, and uses literature to show various crafts of writing. The second part of Writing Workshop includes small group and individual writing activities, where students practice the writing skill covered in the mini-lesson. Peer and teacher conferencing occur to provide specific feedback and allow for reflection in the development of each student's writing. Writing Workshop includes skills development and assessment of the following writing traits: ideas, organization, voice, word choice, sentence fluency, conventions, and presentation (JCPS, 2008). The school district employed Culham's (2003) *6+1 Traits of Writing* as its model for Writing Workshop.

The Developmental Reading Assessment (2nd ed.). Jefferson County Public Schools utilizes the Developmental Reading Assessment , 2nd edition, (DRA2) as a tool to assess reading skills of elementary and middle school students (Jefferson County Public Schools, 2008). The DRA2 is a teacher-administered assessment that involves four steps: assessing reading engagement, assessing reading fluency, assessing reading comprehension, and determining student reading levels and student reading needs. In one-on-one individual assessments teacher assesses students' reading engagement by describing the students' book selection and sustained reading. In individual reading conferences the teacher has students

read controlled text materials to assess oral reading fluency. To assess reading comprehension the student responds orally to comprehension questions pertaining to the details of the story, the sequence of events and prediction, with more complex comprehension skills assessed at higher levels of the DRA2. After grade 2, students also provide written responses to comprehension questions (Beaver & Carter, 2009).

The DRA2 employs controlled texts, called Benchmark Assessment Books that are assigned DRA2 levels along a continuum of reading levels grouped as follows: Emergent Levels A-3; Early Levels 4-12; Transition Levels 14-24; Extending Levels 28-38; and, Intermediate/Middle School Levels 40-80. Each administration of the DRA2 presents text at a specified DRA2 level, requiring the teacher to assess each student's performance along a continuum from Intervention to Independent to Instructional to Advanced. Specific descriptive language guides teachers in assessing at what level students performed along this continuum. Jefferson County required teachers to determine the highest level that K-3 students demonstrated Independent reading skills (Jefferson County Public Schools, 2008). In the school district's manual for implementing balanced literacy the DRA2 should be administered to all elementary students, except as noted, according to the following schedule:

Kindergarten:	Mid-year - benchmark level 2
	Spring – benchmark level 3
1st grade	Fall- benchmark level 3/4
	Nov/Dec - benchmark level 8
	Feb/March - benchmark level 12
	May/June- benchmark level 16
2nd grade	Fall – benchmark level16/18
	Mid-year – All except those at 28 in the fall; benchmark level 24

	May/June - All students; benchmark level 28
3rd grade	Fall- benchmark level 28/30
	Mid-year – All except those at 38 in the fall; benchmark level 34
	May/June – benchmark level 38
4th grade	Fall – Test new students to JCPS, those below 425 on 3rd gr. SOL, below benchmark level Independent 38
	Mid-year – Reassess only those tested in the fall below Independent 40
	May/June – optional; benchmark level 40
5th grade	Fall – Test new students to JCPS, those below 425 on 4th gr. SOL, below benchmark level Independent 38 at 3rd gr., or Independent 40 at 4th
	Mid-year - Reassess only those tested in the fall below Independent 50
	May/June – optional; benchmark level 50

The school district's Balanced Literacy manual notes that the schedule above is a minimal administration schedule and the teacher could administer the DRA2 more frequently if needed (Jefferson County Public Schools, 2008). In completing the DRA2 assessment for each student, the teacher would provide scoring for the subtests (Reading Engagement, Oral Reading Fluency, and Comprehension) and a global score that reflected an overall DRA2 level.

It is within this context of a balanced literacy framework with the DRA2 as the approved school district reading skills assessment that Jefferson County special education staff analyzed data and determined that structured sequential multisensory reading instruction was needed for some students to appropriately supplement the district curriculum to provide individualized reading instruction for some students.

Professional Development

Because the implementation of multisensory reading instruction in Jefferson County Public Schools depended upon intensive and ongoing professional development, it is important to review literature that addresses standards of professional development. The National Council of Staff Development (NCSD), now known as Learning Forward, developed Standards of Professional Learning, updating them in 2011. These standards are developed under the following five key concepts:

- Learning Communities: Professional learning that increases educator effectiveness and results for all students occurs within learning communities committed to continuous improvement, collective responsibility, and goal alignment.
- Leadership: Professional learning that increases educator effectiveness and results for all students requires skillful leaders who develop capacity, advocate, and create support systems for professional learning.
- Resources: Professional learning that increases educator effectiveness and results for all students requires prioritizing, monitoring, and coordinating resources for educator learning.
- Data: Professional learning that increases educator effectiveness and results for all students uses a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning.
- Learning Designs: Professional learning that increases educator effectiveness and results for all students integrates theories, research, and models of human learning to achieve its intended outcomes.

- Implementation: Professional learning that increases educator effectiveness and results for all students applies research on change and sustains support for implementation of professional learning for long term change.
- Outcomes: Professional learning that increases educator effectiveness and results for all students aligns its outcomes with educator performance and student curriculum standards (Learning Forward, 2011).

The professional development provided for teachers and others involved in the implementation of multisensory reading instruction is examined in the context of these standards.

Guiding Change in Special Education

Volumes of literature document the phenomena of organizational change. Understanding organizational change is pertinent to the implementation of a new instructional strategy and model of instruction represented by multisensory reading instruction. Fullan (2001) describes five factors in a theoretical model of leadership and change: moral purpose, understanding change, developing relationships, knowledge building, and coherence making. He discusses how schools can become learning organizations where change is learned and embraced. The moral purpose involves acting to make positive differences in peoples' lives. Understanding the complexities of the change process is critical to fulfilling the moral purpose. Leading change involves building relationships among diverse people and groups. Knowledge building and sharing involves the organizational openness to shared discovery and learning. Coherence making involves "productive disturbance" of the organization to move it towards change, then to unify actions towards consensus goals and desired outcomes (Fullan, 2001).

DuFour and Eaker (1998) developed a framework for changing schools built upon professional learning communities as Fullan had espoused well before his 2001 best-seller. Based upon school reform in their own school, they described a more committed, participatory change dynamic that grew out of Dr. DuFour's transformational leadership at Adlai Stevenson High School in Illinois. Schools and organizations become effective learning communities and can sustain effective change with:

1. Shared mission, vision, and values. Organizational purpose with guiding vision and principles unite members of the learning community.
2. Collective inquiry. Public reflection, shared meaning, joint planning and coordinated action are critical elements of collective inquiry.
3. Collaborative teams. A professional learning community is a group of collaborative teams with shared mission, vision and values.
4. Action orientation and experimentation. Opportunities for learning always occur when professionals take action and risks to improve.
5. A mindset of continuous improvement. Striving to live the mission and attain the vision drive members to continuously improve individually and collectively.
6. Results orientation. Intentions and inputs were not enough. Improved student outcomes must be expected and assessed (DuFour & Eaker, 1998).

Havelock and Hamilton (2004) address change in terms of special education instructional initiatives. The authors model of change encompasses components similar to Fullan's and DuFour's, with the additional articulation of a critical role of a change agent, who acts as catalyst, solution giver, process helper and "linker," connecting people to knowledge and resources inside and outside of the organization (Havelock & Hamilton,

2004). Their C-R-E-A-T-E-R model is a seven stage model that can help embed systematic change.

1. Care. What is the concern about a situation that needs changing?
2. Relate. Whose concern is it? What stakeholders need involvement?
3. Examine. How are the concerns diagnosed and defined as a solvable problem?
4. Acquire. What help, resources do we need and how do we get them?
5. Try. How do we pick the best solution and design a trial?
6. Extend. How do we build broader acceptance and adoption?
7. Renew. How do we build continual refinement and sustain commitment (Havelock & Hamilton, 2004)?

Theories and models of change are quite relevant to the context of implementation of a new instructional model of multisensory reading instruction in Jefferson County Public Schools. This instructional strategy instruction changed the capacity, roles, and scheduling of special education teachers and schools to provide specialized reading instruction.

Jefferson County Public Schools Implementation of Multisensory Reading Strategy Instruction

In spring of 2009 several Jefferson County special education leaders and teachers attended a 5-day Richmond area workshop provided by IMSE. They came away impressed with the tools that teachers could use to provide systematic, sequential reading instruction for students struggling with reading that could supplement the school district's balanced literacy initiative. The district's special education liaison for literacy continued to research IMSE, recommending that the district employ IMSE to provide professional development in multisensory reading strategies as a means to provide specialized reading instruction for those students who need it.

High incidence students with disabilities. This specialized reading instruction would be designed to coordinate with the general education balanced literacy model and seek to improve reading skills with a focus upon the "high incidence" students with disabilities, students who were identified as students with a specific learning disability, an emotional disability, an other health impairment, or a mild intellectual disability. "High incidence disabilities by definition are those involving the largest numbers of students, by many counts more than one in ten in the average classroom. They are also the students most likely to be in mainstream educational environments with a range of interventions..." (Friedlander & Peterson-Karlan, 2005, p. 1). Stichter, Conroy, and Kauffman (2008) note that the disability areas of learning disability, emotional disability and mild intellectual disability make up about 70% of the population of students with disabilities. They further note that the prevalence of students with attention deficit hyperactivity disorder, falling under the category of other health impaired has become a high incidence disability category. In Jefferson County, students with these four disabilities make up 1265 of the 2842 students with disabilities aged 5-10, based upon the school district's December 1, 2011 count of students as reported to the Virginia Department of Education These four disability categories make up over 60% of the identified students with disabilities in Jefferson County Public Schools for all age groups. The other significant number of students with disabilities in this age range includes 1122 students with speech/language impairments (Virginia Department of Education, 2012). In affirming Friedlander, et al. it is predominately students in these high incidence disability areas that are served in general education classes in Jefferson County Public Schools with a range of interventions, based upon Individualized Education Programs (IEP). According to the school district's 2009-10 state performance plan, 71% of Jefferson

County Public Schools students with disabilities spent 80% or more of their school day in general education classes (Virginia Department of Education, 2012).

Actions to support multisensory reading initiative. Jefferson County Public Schools (JCPS) implemented and sought to sustain multisensory reading strategy instruction through the following strategies:

- Intensive professional development. Over 300 special education teachers were provided a five day intensive training totaling 30 hours, provided by trainers from the Institute for Multisensory Education (IMSE). Teachers received the IMSE Teacher Training Manual along with instructional materials and supplies to immediately begin multisensory reading instruction the following week after this professional development.
- Instructional materials and supplies. Each teacher was provided extensive instructional materials and supplies that included: sand trays, colored sand, textured plastic grids, cotton balls, house diagram paper, visual phoneme-grapheme charts, teacher card packs, blending boards with paper, "red word" folders with charts, paper, crayon and textured plastic screen grids.
- Instructional leadership. The Teacher Liaison position was added to the special education department staffing to coordinate the staff development initiative and provide leadership to support implementation of the multisensory reading strategies district-wide in the 38 elementary schools in Jefferson County. In addition, the special education liaisons who provided the special education instructional support for all 38 elementary schools participated in the 30-hour professional development. These district special education leaders would assist in sustaining the implementation of the multisensory reading strategy instruction, so their intimate familiarity with the

strategies and training would aid their efforts to assist teachers' classroom implementation.

- Follow-up IMSE observations and training. IMSE trainers had a two-day follow up visit to the Jefferson County school district. They observed multisensory reading instruction at specific schools and provided a follow-up training activity offered for teachers providing this instruction.
- Literacy Leaders cohort established. The teacher liaison who coordinated the multisensory initiative in JCPS, established a cohort of Literacy Leaders, teacher representatives from each elementary school who met periodically to discuss implementation at their schools. This cohort provided the teacher liaison with valuable information that included some positive stories of student achievement as well as descriptions of facilitating conditions and barriers with regard to teacher implementation of the strategies.
- Administrator professional development. Principals and assistant principals were invited to participate in a 3 hour professional development provided by the IMSE trainer. Additional professional development regarding multisensory reading strategy instruction was provided at principal meetings and at monthly administrator of special education (ASE) meetings.
- An expectation of tiered multisensory reading interventions. Teachers were expected to implement multisensory reading instruction, with differentiated levels of instruction based upon students' reading instruction needs. The provision of multisensory reading instruction should reflect the following:

    * Students whose reading achievement is 1-2 years below grade level receive three 30 minute sessions of multisensory reading per week.

* Students whose reading achievement is 2 or more years below grade level receive five 30 minute sessions of multisensory instruction per week.

- A tiered system of school intervention. The school district established a tiered system of school interventions based upon student performance data, status with regard to schools attaining AYP and attaining prescribed school district Key Success Measures. The expectation was that schools having greater challenges with student achievement, not reaching AYP status or not reaching district benchmarks in Key Success Measures would receive additional central office supports that could include professional development, supplemental curriculum resources, funding to provide remediation opportunities, classroom observations with feedback, data analysis workshops and administrative meetings.
- Multisensory "sweeps." Based upon school need and request, with coordination among individual school administrators and special education central office leaders, central office special education staff conducted "multisensory sweeps." These "sweeps" included several central office staff observing a school's special education teachers trained in multisensory strategies, meeting with the teachers and administrators, and analyzing the provision of multisensory reading instruction for each individual student. In this last activity, student names would be "thrown on the wall," or written on a white board for all to analyze by grade level, with their reading performance level (DRA2) and follow-up discussion on the needed provision of the appropriate amount of multisensory reading instruction. This intensive activity was implemented at selected schools based upon student reading achievement levels and school AYP status. These "sweeps" were completed to assist schools with their identification of students, to provide feedback to teachers regarding effective

multisensory instruction, and to assist schools in the scheduling of these reading interventions for students within the school's schedule.

- Multisensory reading summer clinics. Teachers trained in multisensory reading strategy instruction offered multisensory reading instruction during the summer months at 27 of the 38 elementary schools when summer school was in session. Students targeted for intensive support could sign up for daily, individual tutorial sessions at their home school or another nearby school. This initiative was supported through IDEA grant funds.
- Reading teachers and some middle school teachers participated in professional development. During the initial two years of providing the initial 30 hour, 5 day professional development approximately 35 elementary school general education reading teachers participated in the training, along with selected middle school special education teachers. The rational for this training was to help sustain capacity to provide specialized reading instruction to complement the efforts of the special education teachers at the elementary schools and offer reading decoding instruction to students at middle schools where reading achievement levels were of concern.

All of these activities were designed to provide a foundation to promote needed systematic sequential reading strategy instruction following the IMSE model so that elementary students in Jefferson County experiencing problems decoding could receive specialized reading instruction.

Fidelity of Implementation. It is important to understand the extent to which the IMSE multisensory reading instruction strategies were implemented with fidelity by Jefferson County Public school elementary special education teachers. "Fidelity of implementation is traditionally defined as the extent to which the intervention is implemented

as designed during an experimental study" (Benner, Nelson, Stage, & Ralston, 2010, p. 79). Researchers have described five criteria for measuring fidelity of implementation as learned through public health research over the past 35 years. These criteria include: (a) adherence - the components of the intervention are delivered as designed (b) duration- the number, length, or frequency of sessions implemented; (c) quality of delivery - the manner in which the person delivers the intervention using the techniques, processes, or methods prescribed; (d) participant responsiveness - the extent to which participants are engaged by and involved in the activities and content of the intervention; and (e) program differentiation - critical features that distinguish the program from the comparison condition are present or absent during implementation (O'Donnell, 2008). O'Donnell (2008) also notes the importance in understanding both the structure and the process of implementation in program effectiveness assessments, where the fidelity of structure involves the components of adherence and exposure; and fidelity of process involves the components of program differentiation, quality of delivery, and responsiveness. Fidelity of implementation is referred in literature relative to either program efficacy or program effectiveness (O'Donnell, 2008). Efficacy studies emphasize to what extent and with what quality the program has been "delivered," meaning, the training and resources provided to implement the program. Effectiveness studies seek to determine whether and to what extent the implementation of the program produced the desired result. The study of fidelity of implementation is important to gain an understanding of how the quality and extent of implementation can affect program outcomes and to gain confidence that the observed outcomes can be attributed to the intervention (i.e., that positive results are due to the program).

Patton notes that, "until the program is implemented and a "treatment" is believed to be in operation, there may be little reason to even bother with evaluating outcomes" (Patton,

2002, p. 161). Outcome measures are useful when documentation that an intervention has been implemented as designed; otherwise, the researcher or program evaluator lacks the essential information about what it was that produced a measured outcome (Patton, 2002). Determining the extent to which multisensory reading instruction is being implemented according to its design is critical, then, and this will be a determining factor before student achievement outcomes can be attributed to it.

Summary

There is substantial research linking the importance of reading to overall student achievement, to success in other student outcomes, and to success beyond school. NAEP data confirms that there still remain 26% of Virginia fourth graders who read at Below Basic levels. NCLB requirements that all students, including students with disabilities, attain 100% proficiency in reading by 2014 have pressured school districts to research strategies to improve the reading achievement of all students, and especially in NCLB subgroups which include students with disabilities. The National Reading Panel (NRP) provided recommendations for reading instruction based upon an extensive review of research. While some have criticized the methodology, the recommendations, and the political climate surrounding the report, it is important to note that phonemic awareness and explicit phonics instruction were recommended within a balanced reading program for younger readers and those students struggling with reading.

The literature review revealed that NRP recommendations were based upon relatively few research studies that met its standards, a total of 38 that addressed phonics instruction. However, the report concluded that students require some systematic phonics instruction, especially those students struggling with reading, and encouraged school leaders to seek ways to provide this instruction. The need to improve student reading achievement and the

research base indicating this supported the Jefferson County Public School districts' efforts to research scientifically-based reading strategy instruction that included explicit, systematic phonemic awareness, and phonics instruction for students with disabilities. Orton-Gillingham (O-G) multisensory reading strategies provide phonemic awareness and phonics skill development through visual, auditory, and tactile-kinesthetic senses to help reinforce learning through multiple channels, allowing greater opportunities for the students' brains to make the learning connections. Research on O-G methodology showed some positive effects with regard to general reading ability. The Institute for Multisensory Education serves to disseminate multisensory reading strategy instruction to school teachers, and the Jefferson County school district adopted their approach to O-G because of their emphasis on integrating this instruction within a balance literacy model of reading and language arts.

Jefferson County Public Schools sought reading strategy instruction that focused on explicit, sequential, systematic instruction in phonemic awareness and phonics to supplement the school division's balanced literacy initiative. The school division committed to extensive professional development and school-based support for teachers to implement multisensory reading strategy instruction to improve the reading skills of students with disabilities, focusing on "high incidence" disabilities. What are the challenges school divisions such as JCPS must address in providing multisensory reading instruction for students with disabilities across a diverse number of elementary schools? As the school division seeks greater treatment integrity with multisensory reading strategy instruction based upon the professional development provided, a formative program evaluation was planned to respond to the research questions. Professional development standards and models that address guiding change in educational organizations, particularly special education, must be taken into consideration in a formative program evaluation. These factors must be considered in

program evaluation of an initiative involving extensive professional development and significant change in the provision of specialized instruction for students with disabilities.

Program evaluation is a well-developed science that has evolved many models, depending upon the scope, purpose, audience, and participants involved in the evaluation. Authorities in program evaluation have established professional standards of conduct that guide evaluators in ethical practice including propriety, utility, feasibility, and accuracy. Chapter 3 describes the methodology employed in answering the evaluation questions.

CHAPTER 3

Methodology

Evaluation is "the identification, clarification, and application of defensible criteria to determine an evaluation object's value, its merit or worth, in regard to those criteria" (Fitzpatrick, Sanders, & Worthen, 2011, p. 7). A key purpose of educational program evaluation is providing information that will improve the quality of decisions made by policymakers and others (Fitzpatrick et al., 2011). These authors note the differences between research and evaluation, explaining that, given the limited focus of program evaluation with each program's unique characteristics, generalizability of results is not as critical a factor in program evaluation. Criteria to judge accuracy in research include measures of internal and external validity. The criteria to judge the adequacy of evaluation include accuracy, utility, feasibility and propriety (which the researcher will discuss in more detail later) as well as evaluation accountability (Fitzpatrick et al., 2011).

Fitzpatrick, et al. (2011) have categorized models of program evaluation to include (a) expertise and consumer-oriented evaluation approaches, (b) program-oriented evaluation approaches, (c) decision-oriented evaluation approaches, and (d) participant-oriented evaluation approaches. Expertise-oriented evaluations involve persons with expertise in a field who judge the quality of an institution, program, or activity (Fitzpatrick et al., 2011). Accreditation boards perform formal expertise-oriented evaluations, while an ad hoc committee of experts could complete a less formal review. Consumer-oriented evaluations provide evaluations of services, products, or programs where the target audience is the public.

Program-oriented approaches to evaluation focus on key program features, with objective-oriented and program theory models prominent within this approach. Objective-

oriented approaches assess whether a program and its components have attained their intended objectives. Program theory methods employ logic models to better explain how a program and components achieve their objectives. Logic models require program planners to identify program inputs, activities, outputs, and outcomes and present these program components in a diagram (Fitzpatrick et al., 2011). This logic model displays the theory of the program, which is the construction of a plausible or sensible model of how a program is supposed to work. Fitzpatrick et al. (2011) note the importance of having a fully developed program theory before the identification of evaluation questions.

Decision-oriented evaluation approaches are designed to provide relevant information specifically to assist program managers and leaders with decisions. In this model an evaluator works closely with an administrator, identifying possible decisions the administrator will make, and collects information about the advantages and disadvantages of each decision alternative based on specified criteria (Fitzpatrick et al., 2011). Participant-oriented approaches emphasize "firsthand experience with program activities and settings and involvement of program participants, staff and managers in evaluation" (Fitzpatrick et al., 2011).

Gall, Gall and Borg (2003) describe the steps that should be involved in conducting a program evaluation. These include:

- clarifying reasons for an evaluation,
- selecting an evaluation model,
- identifying stakeholders, those involved or affected by the evaluation,
- deciding what is to be evaluated,
- identifying the evaluation questions,
- developing the evaluation design and timeline,

- collecting and analyzing evaluation data, and reporting evaluation results (Gall et al., 2003).

Similar to educational research, program evaluations can include quantitative and qualitative approaches or a combination of both (Gall et al., 2003). Quantitative approaches rely on positivist methods of inquiry, with objective measurement, representative sampling and the use of statistical techniques to analyze data. Qualitative approaches involve interviews, focus groups or observations to compile rich information that quantitative methods cannot describe. Program evaluation can also be classified as formative or summative. "Formative evaluation is done by developers while the program or product is under development, in order to support the process of improving its effectiveness" (Gall et al., 2003, p. 570). Summative evaluations assess the effectiveness or worth of fully developed programs. This program evaluation utilized qualitative and quantitative methods to seek understanding of the multisensory reading initiative implementation and provide recommendations that describe how the program can be sustained to improve student reading skills. Quantitative research assumes an objective reality and the chief methodology is "to describe and explain features of this reality by collecting numerical data on observable behaviors of samples and by subjecting these data to statistical analysis" (Gall et al., 2003, p. 634). Qualitative research assumes that individuals construct reality through meanings and interpretations that are situational specific. The methodology involves description of these meanings and interpretations through study in natural settings and applying analytic induction techniques to the descriptive data (Gall et al., 2003, p. 634). Employing these two research methodologies provides important descriptive and statistical data to describe multisensory reading instruction from multiple perspectives and learn the relationship between this instructional tool and preliminary gains in student reading achievement.

Standards of Program Evaluation

The Joint Committee on Standards of Evaluation developed 30 standards as criteria to judge the quality and value of an evaluation study. These standards are clustered into four categories: propriety, utility, feasibility, and accuracy, known in the field of program evaluation as "The PUFA Standards" (Gall et al., 2003). Propriety standards reflect the fact that human subjects that may be part of an evaluation are informed, protected, and treated fairly. Utility standards guide evaluations to ensure that they are informative, timely and influential. Feasibility standards require that evaluation designs must be operable in the field and not consume inordinate resources of time, material and personnel in their implementation. Accuracy standards address the technical adequacy of the information considered, producing sound information with appropriate conclusions based upon the data (Fitzpatrick et al., 2011). These program evaluation standards are detailed in Appendix F.

Guiding Principles for Evaluators

The American Evaluation Association (AEA) developed guiding principles for the professional evaluators that include systematic inquiry, competence, integrity/honesty, respect for people, and responsibilities for the general and public welfare (AEA, 2004). Systematic inquiry ensures evaluators conduct systematic, data-based inquiries with proper depth, accuracy and credibility. Competence addresses the standard of competent performance to stakeholders, with evaluators practicing within their area of expertise and demonstrating cultural competence. Integrity/honesty guidelines delineate evaluators' responsibilities to ensure the honesty and integrity of the evaluation process as well as the individual integrity and honesty of each of the evaluators. In respect for people, evaluators respect the security, dignity and self-worth of program participants and evaluation stakeholders. In acknowledging responsibilities for the general and public welfare, evaluators

should "articulate and take into account the diversity of general and public interests and values that may be related to the evaluation" (AEA, 2004).

Fitzpatrick, et al., (2011) have categorized models of program evaluation to include (a) expertise and consumer-oriented evaluation approaches, (b) program-oriented evaluation approaches, (c) decision-oriented evaluation approaches, and (d) participant-oriented evaluation approaches. The logic model provides a graphic representation of the theory of the program, explaining the expected outcomes given inputs (resources), activities and outputs. This provides a richer context for program evaluation, beyond objective-based program evaluations that would merely ascertain as to whether a program achieved its objectives. The logic model provides a more comprehensive analysis of variables contributing to program functioning, ensuring that the multiple variables in a program are reviewed (Fitzpatrick et al, 2011).

Evaluation of the JCPS Multisensory Reading Instruction

This program evaluation of the Jefferson County Public Schools (JCPS) Multisensory Reading Strategy Instruction is intended to be formative in nature. As stated earlier, formative program evaluation "seeks to collect information that will help program staff make mid-course corrections in the program design and/or delivery that will increase the probability of success" of the program (Mertens & McLaughlin, 2004, p. 20). These formative evaluations "serve the purpose of improving a specific program, policy, group of staff (in a personnel evaluation), or product. Formative evaluations aim at forming (shaping) the thing to be studied (Patton, 2002, p. 220). The Jefferson County Public Schools elementary special education teachers were trained in multisensory reading strategies between summer 2009 and fall 2011 in sessions of between 25 to 40 teachers. This program evaluation will utilize qualitative and quantitative data to seek understanding of the

multisensory reading initiative implementation and provide recommendations regarding how the program can be sustained to improve student reading skills. The program evaluation is guided by the questions that seek to ascertain barriers and facilitating conditions; implementation fidelity; and student achievement data toward improving program implementation.

Evaluation Questions

The methodology for this program evaluation is driven by the core research questions:

1. What are the facilitating conditions and constraints in the Jefferson County school division's instructional initiative to provide multisensory reading strategy instruction for elementary students with disabilities?
2. What practices are in place to foster fidelity of implementation of multisensory reading strategies by teachers trained in these strategies?
3. To what extent is there fidelity of implementation and what factors may account for the variability in fidelity of implementation of multisensory reading strategies by teachers trained in these strategies?
4. To what extent is there a correlation between the level of implementation of the multisensory reading instruction and reading gain scores for students with disabilities?

Participants

Students. One hundred twenty two special education teachers (see criteria below) submitted lists with the names of students participating in their multisensory reading instruction, noting the number of hours of multisensory reading instruction the teacher reported providing each student between June 2011 and February 2012. These students were

considered based upon their need for multisensory instruction and their "high incidence" disability status, meaning that they represented students with specific learning disabilities, emotional disabilities, other health impairments and mild intellectual disabilities that make up a large proportion of the elementary aged students with disabilities. These "high" incidence students with disabilities, some of whom have reading decoding deficits, are the pool of students from whom study participants were drawn.

The teachers who responded to the request for summary multisensory data for their students reported a total number of 630 students receiving multisensory instruction. Teachers reported students participating in multisensory reading that ranged from 135 hours to 0 hours from September, 2011 through January 2012. For each of these 630 students, the researcher attempted to collect DRA2 achievement data obtained between June 2011 and February 2012 using the school divisions Information Data System (IDS). A spreadsheet was created with student ID number, grade, disability, number of hours of multisensory instruction, DRA2 score from June 2011, and DRA2 score from Jan/Feb. 2012. Student names were deleted from the database for statistical study to maintain confidentiality of student participants. From the 630 students, 472 students had two DRA2 scores (June, 2011 and February 2012) for which a gain score could be calculated. Kindergarten students and transfer students did not have June 2011 DRA2 scores, reducing the number of students for whom DRA2 gain scores could be calculated. In addition, there also were a number of students for whom DRA2 were not available in the IDS database for unexplained reasons. Of these 472, 422 included students with the high incidence disabilities of specific learning disability, other health impairment, emotional disability, and mild intellectual disability represented as follows:

Emotional disability	10

Intellectual disability	36
Other health impairment	119
Specific learning disability	257

This pool of 422 student participants was the sample used for descriptive and correlation statistical analysis.

Teachers. Over 200 teachers participated in an intensive 30 hour professional development provided by IMSE staff. Of these, 169 teachers were elementary special education teachers who participated in multisensory reading strategy instruction prior to fall 2011. The participant teachers in this study were assigned to teach elementary students who were eligible as students with specific learning disabilities, emotional disabilities, other health impairments, or mild intellectual disabilities during the 2011-12 school year. These teachers were chosen because these student disability categories are considered "high incidence" disabilities where relatively large numbers of students are represented in every school in the district. These teachers were asked to participate in a survey provided electronically through Survey Monkey to assess their perspectives regarding the multisensory professional development, the provision of resources and their perceptions of supports, barriers, and recommendations regarding their provision of multisensory reading instruction.

Eight of these 169 teachers were selected to participate in a focus group to provide additional understanding regarding implementation of multisensory reading strategy instruction. The focus group participants were selected as a stratified purposeful sample of teachers who provided multisensory reading instruction. A purposeful sampling selects "information-rich cases whose study will illuminate the questions of the study" (Patton, 2002, p. 46). These focus group participants were selected from the list of the 121 of the teachers who reported the number of total hours of multisensory reading instruction they

provided students with disabilities. The teachers reported the total hours of multisensory instruction that they provided each student from fall 2011 until the end of January 2012. The researcher ranked the teachers according to the total number of hours of multisensory instruction that they provided to all their students. For the focus group the researcher sought to have participants representing high, moderate, and low levels of multisensory reading instruction based upon their respective number of total hours of this instruction reported, resulting in a stratified purposeful sample of the elementary special education teachers who reported hours of multisensory reading instruction to the researcher. A total of 121 teachers reported their hours of multisensory instruction. The researcher selected three teachers who provided the highest number of hour of instruction, three teachers who reported providing the lowest number of hours of multisensory reading instruction (but with more than 10 hours of multisensory instruction reported) and two teachers clustered around the median level of implementation. If a teacher declined to participate, then the researcher selected other individual teacher names down the rankings from the high implementers and up the rankings from the lowest implementers. If a teacher at the median level declined, the researcher first chose a teacher name above the median, then below the median and so on alternating the selection of names until a two teachers confirmed participation in the focus group from the mid-range of teachers implementing instruction.

The researcher chose this diverse profile of focus group participants to ensure that the range of perspectives of teachers with regard to levels of implementation of multisensory reading instruction was represented in the teacher focus group. Teachers on the low range of implementation of multisensory hours of instruction were chosen only if they had reported providing more than 10 total hours of multisensory instruction. This was done so that

participants in the focus group all had some level of implementation of multisensory reading instruction.

School-based administrators. A focus group of eight elementary school-based administrators, serving as elementary assistant principals, was conducted. These administrators were selected based upon the perceived high levels of implementation of multisensory reading instruction of their school based upon a collaborative completion of *Multisensory Reading Implementation School-Based Rubric* (Appendix E) by special education specialists and the liaison coordinating the implementation of multisensory reading instruction. This rubric was developed by the Jefferson County Public Schools special education liaison who coordinated the implementation of multisensory reading instruction. This rubric assessed teacher training, teacher participation in follow-up refreshers and share-fairs, teacher amenability to suggestions for implementation, teacher scheduling appropriate time for multisensory instruction based upon student need, and administrative support.

The original intended use of this document was to assess the each school's level of implementation of multisensory reading instruction so that special education instructional specialists and liaisons could provide targeted assistance to schools based upon levels of implementation. For this study, this rubric also served as a tool to determine the eight focus group participant assistant principals at schools that demonstrated the highest level of implementation. Participants were chosen where schools scored between and 11 and 8 on the rubric, reflecting high to moderate levels of implementation according to the rubric.

Special education central office leaders. Three special education central office school leaders were interviewed in semi-structured interviews. These participants included a special education instructional specialist, a special education teacher liaison, and the liaison coordinating the multisensory reading initiative. The elementary special education specialist

serves an administrative function in supervising a team including her and liaisons assigned to provide instructional and procedural support to a set of 13 to 15 schools in Jefferson County. The elementary special education teacher liaisons, referred to as liaisons in this study, work closely with specialists to assist schools by providing observations of classrooms; individual and group professional development; instructional support; support on special education procedural matters such as IEP development; procedural and compliance assistance; and student instructional and behavioral interventions. Staff in the roles of specialist and liaison have significant day-to-day working relationships with school teachers and administrators and are highly knowledgeable regarding instructional practices in the schools with whom they are assigned, hence the rationale for their inclusion as interview participants in this study. Jefferson County Public Schools has a total of three instructional specialists and five teacher liaisons who provide instructional and procedural supports to 38 elementary schools in Jefferson County.

The special education specialist was selected at random from among the three special education instructional specialists who provide instructional and compliance support to the 38 elementary schools in the school district. The names of the three elementary specialists were written on paper strips, the strips placed in a basket and one name chose. The names of special education teacher liaisons who worked regularly with the specialist name selected were eliminated for consideration for the interview to ensure that a diversity of perspectives and school supports was represented in the interview. In a similar fashion, the researcher chose the name of the liaison interview participant.

The IMSE staff member. The IMSE director of education, who coordinated and planned the intensive 30 hour, five day professional development sessions for Jefferson County teachers was selected to participate in a semi-structured interview. This person

observed selected classrooms in a refresher and provided feedback to specific special education teachers and central office staff regarding implementation of multisensory reading instruction. In addition, this IMSE director of education provided the IMSE administrative overview training to which all elementary administrators were invited. This participant was chosen to help the researcher understand the perspective of expert multisensory provider regarding the school district's implementation of multisensory reading instruction and learn how it may compare with other school districts' implementation of this instructional initiative. The researcher conducted a telephone survey with this participant, who lives and works in Michigan. This interview, like the others, was recorded by the researcher and transcribed by a third party.

Data Sources

Review of documents and communications. A review of documents included the following:

- training materials provided to teachers
- training materials provided to administrators
- key e-mail communications between district leaders and the teachers and school administrators
- professional development planning information, communication
- training materials distributed to teachers and literacy leaders
- schedules of school interventions
- forms, checklists and rubrics used by teachers to document instruction and student progress
- teacher observation checklists

- instructional resources posted on the school division's portal, or intra-division website
- IMSE Teacher Training Manual
- IMSE Assessment Manual
- Special education leader resource manual

The focus of this review was the breadth, quality and focus on resources and expectations for implementation of multisensory reading strategy instruction, guided by the evaluation questions.

Survey. "A survey is a system for collecting information from or about people to describe, compare, or explain their knowledge, attitudes, and behavior" (Fink, 2003, p. 1). Surveys are used in program evaluation for a wide variety of purposes, used similarly to questionnaires when there is a desire to obtain information from many individuals and analyze the responses quantitatively (Fitzpatrick, et al., 2011). Strong surveys include the following:

- Specific objectives
- Straightforward questions
- Sound research design
- Sound choice of population or sample
- Reliable and valid survey instruments
- Appropriate management and analysis
- Accurate reporting of survey results
- Reasonable resources (Fink, 2003, p. 6)

An electronic survey was used in this program evaluation through Survey Monkey to efficiently gather information from a large number of participants to compile and analyze qualitative and quantitative data relating to the four research questions. Fitzpatrick et al. (2011) emphasizes the importance of developing a design plan when researchers are creating their own questionnaires that are to be utilized in surveys. This model, along with Fink's (2003) *Survey Kit* were resources utilized to refine survey questions used in this program evaluation. Table 4 illustrates the Design Plan for the Survey. The researcher refined survey questions that "ask for information in unambiguous ways and extracts accurate and consistent information" (Fink, 2003, p. 11).

The survey was pre-tested with two different groups, administrators and teachers. Three central office specialists, all PhD-level career special education leaders, reviewed the survey with the liaison coordinating the multisensory reading initiative, who has a master's degree in reading instruction. This expert panel provided precise feedback contributing to the streamlining and clarity of the revised survey questions, affirming the content validity of the survey questions. Four special education teachers reviewed the survey, providing mostly affirmative feedback, with two teachers expressing concern about the length of the survey.

Teachers received two types of notices regarding their participation in the electronic survey. The initial link to the survey was sent on an e-mail letter to teachers provided by the Chief Academic Officer of the school district, who wanted to encourage the teachers' participation in the formative program evaluation. The researcher then distributed a hard copy of the letter from the Chief Academic Officer via the school district's internal mail that teachers would receive approximately two days after the original e-mail notice. The researcher followed up with a second e-mail reminder to the teachers two days prior to the final due date of March 7, 2012 and once more on the morning of the March 7, 2012 due

date. Fitzpatrick et al., noted a research finding by Converse, Wolfe, Huang, and Osward (2008) that found that using a mailed announcement of a web-based survey led to a higher response rate than an e-mail with a link to the web-based survey (Fitzpatrick et al., 2011). Both conventional mail and e-mail notices were used in this study to maximize teacher participation in the survey.

Table 4.

Design Plan for Survey Questions

Evaluation Question	*Item Type*	*Item Number*	*Analysis*
1. What are the facilitating conditions and constraints in a school division's instructional initiative to provide multisensory reading strategy instruction for elementary students with disabilities?	Likert	4, 10,12, 14, 16, 18	Percentages of responses
	Open-ended	11, 13, 15, 17, 19	Coding
2. What practices are in place to foster fidelity of implementation of multisensory reading strategies by teachers trained in these strategies?	Likert	5, 10,12	Percentages of responses
	Open-ended	11, 13	Coding
3. To what extent is there fidelity of implementation and what factors may account for the variability in fidelity of implementation of multisensory reading strategies by teachers trained in these strategies?	Likert	5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17	Percentages of responses
	Open-ended	6, 7, 8	Coding
4. To what extent is there a correlation between the level of implementation of the multisensory reading instruction and reading gain scores for students with disabilities?	Likert	9	Percentages of responses

Note. Adapted from *Program Evaluation: Alternative Approaches and Practical Guidelines* (4th ed.), by J.L. Fitzpatrick, J.R. Sanders, and B. R. Worthen, 2011, p. 428. Copyright Pearson.

Approximately 200 elementary special education teachers participated in an intensive 30 hour professional development provided by IMSE staff prior to fall 2011. One hundred sixty nine (169) of these teachers who had participated in the 30 hour, 5 day multisensory professional development were asked to complete a survey provided electronically through Survey Monkey to assess their perceptions of the training and their implementation of

multisensory reading strategies. This reduced number of teacher participants reflected the elementary special education teachers who provided instruction to "high incidence disabilities," those endorsed and assigned as teachers of students with emotional disabilities, specific learning disabilities, other health impairments and mild intellectual disabilities. The researcher determined that it would be appropriate to provide this survey to every elementary special education teacher assigned as teachers of specific learning disabilities, emotional disabilities or mild intellectual disabilities who participated trained in the multisensory reading professional development to obtain comprehensive data to answer the research questions. This survey was tested for validity through initial administration to a sample of teachers and administrators to check for clarity and focus of survey questions. A revised version of the survey was posted electronically via the school division's Office of Planning and Research, which conducts program evaluations for the division. To review the complete survey, see Appendix A. Sample questions include:

> The following three questions pertain to your provision of multisensory reading instruction for specific students with disabilities, based upon their reading level. For each of these questions, note the number of 30 minute sessions per week each student participates in multisensory reading instruction. This would reflect your estimate of weekly sessions of multisensory, on average, for the students as described in each question. * NOTE: If your units of time (e.g. 20 minute sessions instead of 30 minute sessions) are different, please write it in the text box below.
>
> 6. For students who are <u>1 year behind grade level</u> in reading as measured by the DRA2, on average how many 30 minute sessions* of multisensory reading instruction do you provide each week?
>
> | One time weekly | Two times weekly | Three times weekly | Four times weekly | Five times weekly |
> |---|---|---|---|---|

○ ○ ○ ○ ○

( )

7. For students who are 1 to 2 years behind grade level in reading as measured by the DRA2, on average how many 30 minute sessions* of multisensory reading instruction do you provide each week?

One time weekly	Two times weekly	Three times weekly	Four times weekly	Five times weekly
○	○	○	○	○

( )

8. For students who are 2 or more years behind grade level in reading as measured by the DRA2, on average how many 30 minute sessions* of multisensory reading instruction do you provide each week?

One time weekly	Two times weekly	Three times weekly	Four times weekly	Five times weekly
○	○	○	○	○

( )

Focus groups. Focus groups are made up of small groups of 6-8 individuals chosen by a researcher to respond to questions and undertake a discussion about a specified topic (Morgan, 1998). The role of the facilitator of focus groups is critical to promoting a rich discussion that provides the researcher with important data about phenomena. "The role of the leader to facilitate discussion by introducing and describing the process, posing initial and periodic questions, moderating the response of more vocal members, encouraging responses from quieter members, and monitoring the time to ensure that critical questions are covered" (Fitzpatrick et al., 2011, p. 438). A co-facilitator may assist with taking notes and/or observing body language and assisting in interpretations of the focus group session. The focus group sessions are recorded; the researcher reviews transcriptions of recordings and seeks to document themes evident in open-ended discussions or document responses if

questions are more close-ended (Fitzpatrick et al., 2011). This researcher chose focus groups as a data collection procedure because of the rich data that would be provided regarding lived experiences of educators in implementing a new set of strategies in school settings.

Krueger (1998) provides guidance regarding the careful selection of questions that facilitates effective participation in focus groups. The focus group questions should be carefully sequenced, simple, clear, concise, jargon-free, open-ended, and include specific types of questions (Krueger, 1998). These types of questions include:

A. Opening question. This question asks demographic information and includes a "warm-up" question to "establish a sense of community in the group in terms of how participants feel after they've heard responses from others" (Krueger, 1998, p. 23).

B. Introductory questions. These are questions that broadly begin to discuss the topic, asking participants their experience with the topic.

C. Transition questions. These questions carry the discussion towards the key questions that are driving the study, more specifically asking about their relationship with the topic.

D. Key questions. These questions are tied directly to the research or evaluation questions. The facilitator will allow more time for these responses, expecting to ask more follow-up or probe questions to permit full development of participants' responses.

E. Ending questions. These questions help summarize the discussion and ensure that participants have discussed the topic as thoroughly as possible (Krueger, 1998).

Two focus groups were established to respond to a series of questions related to the key research questions pertaining to this program evaluation. The questions for both focus groups are outlined using Krueger's methodology and are found in Appendix B. Sample questions include the following:

Introductory question:

Please describe your understanding and your experience with multisensory reading instruction in your school.

Transition questions:

How have you been involved with multisensory reading instruction at your school?

Tell us what you think is important about providing multisensory reading instruction?

Can you describe any student success stories as a result of multisensory reading instruction?

Key question:

What would effective implementation of multisensory reading instruction look like in our schools?

Possible Probe:

How do you know how multisensory reading instruction is supposed to be implemented?

The focus groups were recorded and the recordings transcribed. The co-facilitators reviewed transcripts and collaborated in determining coding of responses to extract critical themes as guided by the evaluation questions. The researcher read the transcript while listening to the focus group audio-recording to verify the accuracy of the transcript and to code the names of participants in the written transcript.

Semi-structured interviews. Interviews are a key technique of qualitative data collection, with researchers using qualitative interviews for "learning the perspectives, attitudes, behaviors and experiences of others" (Fitzpatrick, 2011, p. 434). Interviews provide deeper understandings than surveys, allowing clarification and probing, and promoting

exploration and discovery. Interview questions must be structured to provide information the researcher needs to answer the key research questions while encouraging participants to tell their stories and carefully guiding discussion. Some helpful guidelines for interviewers to foster quality interviews include:

1. Start with relaxing "chatty' questions to relax participants.
2. Match the interview language with that of the participant.
3. Avoid long questions.
4. Phrase questions carefully to elicit the type of response you are seeking (opinion, facts, and detailed actions).
5. Try not to put the participant in the defensive with the phrasing and language of questions (Fitzpatrick et al., 2011).

This researcher used semi-structured interviews as a critical tool to gain the perspectives of key individuals involved in the implementation of multisensory reading instruction in Jefferson County. "The semi-structured interview involves the series of structured questions and then probing more deeply using open-form questions to obtain additional information" (Gall et al., 2003, p. 240). These authors note the advantage of the semi-structured interview is that it can provide relatively standard data among participants, but provide more depth of responses, with follow-up probes based upon individual participant responses.

Three central office special education staff participated in semi-structured interviews. This included a special education instructional specialist, a teacher liaison and the liaison coordinating the multisensory initiative. The semi-structured interviews were recorded and the recordings transcribed, with the researcher conducting a member check with the

participants afterward to ensure veracity of summative statements regarding interviews. The researcher interviewed the IMSE education director, who provided training to some of the school division's teachers, coordinated training activities with division staff, provided the administrative overview training and participated in observation and feedback sessions in Jefferson County schools. The interview questions for central office special education administrative staff are found in Appendix C. The interview questions for the IMSE staff member are in Appendix D.

Review of student achievement data. The program evaluation will correlate extant student achievement data for students based upon their amount of multisensory reading instruction. Through this review of existing division testing data for selected students, no additional testing of students will be required as part of this program evaluation. Student assessment data will be collected for 130 students who have received multisensory reading instruction since June 2011. The students' performance on the Developmental Reading Assessment (DRA2) in June, 2011 will be compared to DRA2 scores in from DRA2 assessments administered in January or February 2012. The approximate hours and minutes of student exposure to multisensory reading instruction between June 2011 and January 2012 were correlated to the achievement gain scores as measured by the DRA2.

School-based rubric. The central office special education liaison who has supervised implementation of multisensory reading instruction developed a rubric to ascertain school-by-school implementation of multisensory reading strategy instruction. This rubric is used as a tool to assess the levels of administrative support, teacher knowledge, assessment, and implementation on a school-by-school basis. This rubric was used to assist in the selection of a representative sample of school administrators for the administrative focus group. This

school-based rubric is known as the "Multisensory Reading Implementation School-Based Rubric" and is provided in Appendix E.

Data Collection

Teacher Survey. One hundred sixty nine elementary special education teachers, who participated in the 30 hour training prior to September, 2011 were asked to participate in a survey administered electronically through Survey Monkey. School district e-mail notification and school district inter-office mail were utilized to enlist teacher participation in the survey. The survey participants received an introductory e-mail letter explaining the purposes of the study signed by the school district's Chief Academic Officer, assuring participants that their participation is voluntary, and clarifying that participants may omit responses to particular questions in the survey that they feel uncomfortable answering. Survey data included quantitative data reflecting overall total and average responses to questions as well as qualitative data from short open-ended responses. The Survey Monkey data allows for multiple cross tab analyses to allow the researcher to understand specific responses based upon teacher assignment area, grade level and other characteristics. In addition, the Survey Monkey data was merged with a computer software program, the Statistical Package for the Social Sciences (SPSS) to allow for further statistical analyses. The survey clustered several survey questions together on a table format, designed to make it easier for teachers to respond to similar questions with the same Likert scale without repeated directions and scales. This clustering resulted in question 10 including 6 separate Likert scale responses, question 12 including 5 separate Likert scale responses, question 14 including 4 separate Likert scale responses, question 16 with 6 separate Likert scale responses, and question 18 with 7 separate Likert scales. Means were calculated for each response opportunity where appropriate.

The Survey Monkey software provided reports of the total number of survey participants and the total number of participants for each survey question. Beyond the first three demographic questions, most questions asked teachers for their response along a Likert scale determined for each question. The survey participation rate was 72 percent with 122 of the 169 targeted special education teachers responding to the survey. This survey allowed input from over 41 responses within the 19 question survey. Open-ended responses were solicited in 5 of the survey questions. The survey is in Appendix A.

Focus groups. Two focus groups, one involving eight administrators and another involving seven teachers, were co-facilitated by a staff member not associated with the Office of Exceptional Education, a former coordinator of the school district's psychological services. This professional was selected to co-facilitate the focus groups to ensure open and active participation. Respective staff participants were invited to the focus group. Participants were provided informed consent letters and receive detailed information regarding the purpose and process of the focus group. The focus groups were audio-recorded and transcribed by a third party. The researcher obtained signed, informed consent of each participant prior to each focus group to document each participant's voluntary participation. Focus group participants were provided information at the start of the focus group meeting regarding the purpose and procedure for the process. After the focus group sessions were recorded and transcribed, the participant names were coded with initials of participants or according to pseudonyms provided by the participants.

Teacher tabulation of student time in multisensory instruction. The researcher discovered that there was variability in the teachers' maintenance of records of the approximate number of minutes of multisensory instruction for each of their students who have received this specialized instruction from June 2011 to January 2012. This data was

gathered from lesson plans and multisensory log sheets that they have been asked to maintain as part of multisensory reading instruction. The researcher asked teachers to submit a summary of this data where they were asked to list the name, grade, disability and number of hours/minutes of multisensory reading instruction that each student received between June, 2011 and January 30, 2012, the entire first semester of the school year. Teachers reported a total of 639 names of students with disabilities who had participated in multisensory reading instruction, with hours and minutes of instruction provided.

Student achievement data. Extant school-based data of student DRA2 scores from June 2011 to January/February 2012 was sought from the school district's Instructional Data System (IDS) for the 639 students that teachers originally reported for the study. Of these, 472 students had DRA2 gain scores that were able to be calculated. It should be noted that transfer students and kindergartners did not have June 2011 DRA2 scores to report. Kindergartners are not evaluated on the DRA2 prior to enrollment. Transfer students often do not arrive at the school district from other school districts with DRA2 scores. This resulted in a reduced pool of 472students for whom DRA2 gain scores could be calculated. From this pool of students it was determined that a total of 422 students reflected high incidence disabilities of specific learning disability, emotional disability, other heath impairment, and mild intellectual disability. An Excel spreadsheet was created from the student multisensory hours that teachers reported to the researcher. This spreadsheet included student names (later redacted), student ID numbers (later redacted), grade, disability, teacher, number of multisensory hours reported, the DRA2 score June 2011 the DRA2 score from February, 2012, and the DRA2 gain score. The students' performance on the Developmental Reading Assessment (DRA2) in June, 2011 was compared to DRA2

scores in January 2012. The gain score was the gain in DRA2 score from June, 2011 to February 2012.

Data Analysis

Data analysis of this mixed methods program evaluation reflected quantitative data analysis and qualitative data analysis. In this formative program evaluation descriptive statistics were utilized to describe grade level and disability data pertaining to student hours of multisensory reading instruction and student DRA2 test performance. This included calculation of means and standard deviations for these measures with the demographic groupings of grade and disability. In addition, correlational statistical methods were utilized to determine the relationship between the hours of multisensory instruction students received and the gain in their reading achievement as measured by the DRA2 over time. Such a correlational study of the relationship between student exposure to multisensory reading instruction and reading achievement outcomes would assist the division in further understanding this relationship as implementation is rolled out with more consistency and systematic support. This program evaluation analyzed the relationship between the total estimated time students have been involved in multisensory reading instruction and the gain scores in DRA2 reading achievement between June 2011 and January/February 2012. A gain score is an individual's score on a test administered at one point in time minus the individual's score on an earlier administration of the test (Gall, et al., 2003). The Microsoft Excel Spreadsheet program was used to provide an initial correlation between the amount of student time with multisensory reading instruction and their DRA2 gain score. The data were also downloaded into the computer software program, the Statistical Package for the Social Sciences (SPSS) to allow for further statistical analyses.

The researcher discovered that the same DRA2 gain score of different students in different grades could represent varying levels of growth in reading levels. For instance, a first grade student growing from a DRA2 level 8 to a DRA2 level 12 may have advanced in more reading skills than a 4th grader who has grown from a DRA2 level 24 to a DRA2 level 30, though both have experienced a DRA2 gain score of 6. This is a factor that strongly limited the ability to infer generalizations from whole group correlation between hours of multisensory instruction and DRA2 gain scores. To help address this concern, descriptive statistics were also utilized to organize, summarize and display mean DRA2 gain scores and mean DRA2 scores for students by grade level and by disability. This statistical information was valuable to the researcher in analyzing the relative value of the DRA2 gain score in various grade levels in the context of grade level performance on the DRA2. The need to understand whether DRA2 scores and DRA2 gain scores varied depending upon the student's specific disability would be important information that could affect implementation and outcomes of multisensory reading instruction.

This program evaluation did not intend to determine a causal relationship between multisensory reading instruction and student achievement, given the time-sensitive nature of the evaluation as well as the developmental stage of the program implementation. Based upon anecdotal information and observation by central office special education personnel, teachers were not consistent across the school system with implementation of multisensory strategies. A helpful measure at this stage would be to determine if there is a correlation between the amount of multisensory reading instruction students receive and their gain in reading achievement as measured by the DRA2 from June 2011 to January/February 2012.

In addition to the descriptive and correlational data analysis studying the relationship between DRA2 gain scores and student time in multisensory instruction, the survey

responses of 122 special education teachers provided much quantitative data through the Survey Monkey software. This data were summarized by the Survey Monkey software, providing data on number of responses, and percentage of responses for each question according to each questions response requirements. When the response scales were assigned a numerical value, the statistical means of each response value were able to be determined. These data were useful in describing the average and the variability of responses to each question.

Qualitative data analysis involved the collection of data that is difficult to quantify, but is rich in content, chiefly survey open-ended responses, interview responses and focus group dialogue in this study. As Rossman and Rallis (2003) noted, the foundation of qualitative analysis is thick description, which is the detailing of place, time, actions, events, words and the people on the scene. In a program evaluation, Patton (2002) reflected upon qualitative analysis in program evaluations, noting that "thick evaluation descriptions take those who need to use the evaluation findings *into* the experience and outcomes of the program" (Patton, 2002, p. 438). In the qualitative data analysis, the process of coding responses from interviews and focus groups becomes a manner of conceptualizing the raw verbal data. "Because to uncover, name, and develop concepts, we must open up the text and expose the thoughts, ideas and meaning therein" (Straus & Corbin, 1998, p. 102). This discovery of concepts began with open coding of the text, where data were broken down into discrete parts, and after close examination, similarities and differences are discerned. Concepts with similarities were then grouped into categories and axial coding was then employed to determine categories and subcategories of concepts as analyzed (Straus & Corbin, 1998). Because the four evaluation questions guided the development of interview, survey, and focus group questions, the categories were developed to include the following:

constraints or barriers to implementation; facilitating conditions supporting implementation; variability of implementation; fidelity of implementation; student achievement and exposure to multisensory instruction. The researcher reviewed the transcriptions, compared the transcription to the recording, consulted with the focus group co-facilitator to confirm key themes present in the responses of the focus group participants based upon the program evaluation questions.

The transcripts of the interviews and focus groups were saved as Microsoft Word documents. These documents were copied into Dedoose.com software that simplifies the coding and analysis of text documents. With the large volume of transcripts, this software tool assisted in the qualitative data analysis, enhancing the reliability of the data analysis through the use of a standardized, objective tool. In this program evaluation, as the researcher collected and coded responses from transcripts, themes and patterns emerged that were able to be expressed in some quantifiable representation. The researcher employed content analysis techniques to reduce the volume of data and identify core consistencies and meanings (Patton, 2002), determining themes and developing coding schemes based upon the logic model of the program and the evaluation questions. The categories and subcategories of responses and themes that emerged in the qualitative data analysis provided rich data to use with the quantitative data to thoroughly describe multisensory reading in Jefferson County, as well as the perceptions of key stakeholders, the student achievement outcomes and other data in the formative program evaluation. The description of and comparison of the quantitative and the qualitative data analysis illuminated the status of the multisensory reading initiative and point directions toward program improvement.

Ethical Considerations and Researcher Perspective

"Political, ethical and human factors are present in every evaluation, and moving ahead without considering them will lead to a poor evaluation regardless of the technical merits of the study" (Fitzpatrick, Sanders, & Worthen, 2011, p.65). One ethical consideration is the impact of the evaluator/researcher who also serves as the Director of Exceptional Education in Jefferson County Public Schools. The researcher was cognizant of his role in influencing responses of program evaluation participants as they may wish to respond in manners that would make a positive impression on me instead of reflecting openly and honestly with me. However, an advantage of this relationship as an internal evaluator in this internal formative evaluation is that it may enable the researcher to "behave more ethically when it comes to creating an ongoing evaluative culture in the organization or sustaining a dialogue about a controversial issue uncovered by an evaluation" (Fitzpatrick et al., 2011). As researcher, I have a bias in his wish for this multisensory reading program to succeed. However, due to the formative nature of this evaluation, I am looking for program strengths upon which to build and weaknesses to strengthen toward growth of this instructional model.

To mitigate potential bias due to this organizational relationship, I submitted this program evaluation to the Jefferson County Public School's Office of Planning and Research, which conducts division-wide program evaluations and has no supervisory relationship with me. This was done in advance of the study to gain division approval for participation of the program evaluation, and as a follow-up review of the details and processing of the study. An additional strategy that was included toward reducing bias in this program evaluation is the inclusion of a detailed audit trail, a record of all the details of the process of conducting the study. I shared the audit trail not only with the division's Office of Research and Planning, but also shared documentation with an external professional

evaluator, providing expert review of the program evaluation process. Fitzpatrick et al. (2011) described these three strategies as methods for controlling evaluator bias in the instance of an internal evaluator's relationship with the program and participants being evaluated.

Teachers, administrators and central office staff have invested funds, material resources, time, professional development and emotional capital toward the implementation of this multisensory reading initiative. As an internal evaluator, I had to take into consideration the appropriate and effective manner of communication with regard to providing both positive and negative feedback to those involved in the program. I maintain the perspective as a lifelong learner and I continually seek to improve myself and the work I do. In leading this formative evaluation, my communication had to be skilled, timely, thorough and understanding of the participants' perspectives with the goal toward positively advancing this multisensory reading initiative. In publicizing results of the study, student, school, administrator and teacher names were coded to ensure that the identities of these participants were protected. Division staff other than me co-facilitated the focus groups where recorded results were transcribed by a third party.

Limitations and Delimitations

This formative program evaluation of a multisensory reading initiative in Jefferson County Virginia is limited to the division's use. While quantitative and qualitative data may be useful for external parties, this program evaluation makes no claim of generalization of these findings to other school divisions or programs. Because of its formative nature, this evaluation is limited toward improving an existing program within the context of Jefferson County Public Schools' implementation of multisensory reading strategies instruction that is provided by elementary special education teachers trained by the Institute for Multi-sensory

Education (IMSE). This limited perspective also does not purport to make generalizations regarding the IMSE training, except how it was implemented by Jefferson County Public Schools.

Another limitation of this program evaluation was the time needed to perform the program evaluation, limiting the depth of analysis of student outcome data. As is noted in Chapter 5, the use of time in hours of multisensory reading instruction did not take into consideration the quality of the instruction being provided to students during those hours. The correlation of hours of multisensory instruction in this formative evaluation was intended as an indicator to determine any preliminary relationship between exposure to multisensory strategy instruction and student achievement as measured by the DRA2, with future program evaluation needed for more rigorous student outcome assessment.

Summary

The implementation of the multisensory reading initiative in Jefferson County Public Schools provided an opportunity to conduct a formative program evaluation in relatively early phases of implementation. Survey, interview, focus group, and achievement data sources were all utilized with the perspectives of students, teachers, and administrators represented, as summarized in Table 5. A program evaluation utilizing a mixed methodology, with several sources of quantitative and qualitative data provided rich information that can assist the school district with modifying and sustaining this literacy initiative for high incidence students with disabilities.

Table 5.

Multisensory Reading Program Evaluation Data Collection and Analysis Worksheet

Evaluation Questions	When and How the Information Will Be Collected - Data Sources	Data Analysis and Interpretation Procedures
1.What are the facilitating conditions and constraints in the Jefferson County school division's instructional initiative to provide multisensory reading strategy instruction for elementary students with disabilities?	Review of training documents, communications Description of site visit support (multisensory "sweeps") Feb., March 2012- Focus group of teachers and administrators; teacher survey; interviews of administrators and trainer	Summary of document review relative to criteria Quantitative and Qualitative analysis of survey results Qualitative description of themes in interviews and focus groups
2.What practices are in place to foster fidelity of implementation of multisensory reading strategies by teachers trained in these strategies?	Feb., 2012 –Focus group of administrators Feb., March 2012 – Interview IMSE trainer, liaison coordinating this effort, specialist Feb., March 2012- Selected teachers complete online survey	Descriptive, qualitative summary of interviews Quantitative and qualitative analysis of survey results
3.What practices are in place to foster fidelity of implementation of multisensory reading strategies by teachers trained in these strategies?	Fall 2011- School level Rubric development Winter 2012 - School level Rubric data Feb., 2011- Survey of multisensory reading teachers	Compare survey results to factors of implementation fidelity described in rubric Qualitative and quantitative analysis of survey results
4.To what extent is there a correlation between the level of implementation of the multisensory reading instruction and reading gain scores for students with disabilities?	Jan-March, 2012 – review of 2011-12 school test data Review results of 100 students receiving the most multisensory instruction as submitted by teachers	To what extent does measurable student progress in reading test performance correlate with high levels of implementation?

CHAPTER 4

Results

School districts have implemented specialized reading instruction initiatives to increase the reading skills of students with disabilities, who as a group, have continued to experience gaps in achievement compared to students without disabilities. The purpose of this study was to conduct a formative program evaluation of one school district's reading program initiative, to examine facilitating conditions and constraints that affect its implementation, to examine its implementation fidelity, to determine factors affecting variability in implementation, and to determine if a correlation exists between student exposure to multisensory instruction and student reading progress as measured by the DRA2. The results obtained from analyzing qualitative and quantitative data pertaining to each of the four evaluation questions are addressed in this chapter. The following data were collected during February and March of 2012 and analyzed in the review of results.

Teacher Survey – Multisensory Reading Instruction

The Teacher Survey of Multisensory Reading Instruction was used to gather quantitative and qualitative data regarding all four evaluation questions. This survey was completed electronically with a total of 122 teachers from the pool of 169 teachers responding, a response rate of 72%. The survey included teacher demographic responses, 28 selected-response items, and 5 open-ended responses where teachers could elaborate upon questions.

School Administrator and Teacher Focus Groups

Two focus groups, including 8 elementary special education teachers in one focus

group and 8 elementary school administrators in the other focus group, were co-facilitated by

the retired school district coordinator of psychological services and me. The focus group questions were carefully constructed to facilitate a climate of open, trusted communication and to gain information pertaining to the evaluation questions.

Central Office Special Education Staff Interviews

Three semi-structured interviews were conducted with central office special education staff involved in the implementation of multisensory reading instruction at the elementary schools. These interviews were with a specialist who coordinates school support efforts, a liaison, who assists the specialist in school program supports, and the liaison who leads the school district's multisensory reading initiative. These interviews provided rich qualitative data in response to all four evaluation questions from the important perspectives of staff who provide direct support to the teachers' implementation of multisensory reading instruction.

IMSE Leader Interview

A semi-structured telephone interview was conducted with the education director of the Institute for Multisensory Education. This interview provided important insights into the implementation of multisensory reading instruction by the leader of the company that provided the training for Jefferson County's special education teachers.

Extant Student Instruction and DRA2 Data

Teachers maintained data regarding the scheduling and provision of multisensory reading instruction and submitted this data to the researcher detailing the number of hours of multisensory instruction they provided each of their students. From this list of

students, extant DRA2 performance data from June 2011 and February 2012 were collected for these students, resulting in complete data for 422 high incidence students with disabilities. These data were correlated to determine the relationships between student time with multisensory reading instruction and the students' gain scores on the DRA2.

Document Review

Documents including resource manuals, online resources, memos, and workshop announcements were reviewed to determine the scope of documentation supporting the implementation of multisensory reading instruction. Key professional development and district curriculum manuals were reviewed. These core documents include:

- The *Teacher Training Manual (2008)* provided by the IMSE to all teachers at the five day, 30 hour intensive professional development is the primary reference guide for teachers trained with IMSE in multisensory reading. The *Teacher Training Manual* includes background research on dyslexia and Orton-Gillingham instruction, along with very with specific and extensive teaching resources. Step-by-step instructions are provided for teachers to teach students with the three-part drill, teaching new phonemes, providing learning centers, learning red words, and oral reading. This a comprehensive copyrighted manual that provides model daily and weekly lessons outlining specifically what multisensory reading instruction should look like.
- The *Assessment Manual (2008)* provided by IMSE during the 30 hour, 5 day professional development, includes informal reading assessments with guidelines for assessing students three times a year. This is a comprehensive resource,

under-utilized by teachers according to the liaison who coordinated the multisensory reading initiative.

- *Recipe for Reading (2005)* by Frances Bloom and Nina Traub is a supplemental resource that the school district provided to all teachers trained through IMSE. This book provides a logically organized and tested program for reading instruction that complements the IMSE's Orton-Gillingham reading strategy instruction with systematic, sequential phonics instruction reinforced through multiple senses. This resource is referenced extensively in the IMSE manuals and in several of the school district online resources, especially the *Record of Mastery: A Structured Language Approach to Learning Phonics,* the progress monitoring tool that was intended to be included in the students' permanent record.
- The JCPS *Balanced Literacy Resource Guide (2008)* for all elementary teachers to provide English language arts instruction for students in all 38 elementary schools. The comprehensive curriculum manual was distributed in 2008 with extensive training provided to the teachers in the form of key components of the school district's balanced literacy framework - shared reading, guided reading, writing workshop, and words workshop.
- Another JCPS general education curriculum guide, *Literacy for Tier II Instruction: Helping All Students Succeed (2008)*, provided intervention strategies for emergent, early, transitional, and extending readers. The elements of effective interventions are emphasized: time for reading, working with words, building vocabulary, deepening comprehension, and connecting to writing. The

manual includes a resource section for instructional assistants helping students improve reading skills.

In addition to these resource manuals and books, the school district posts extensive general education and special education resources to support balanced literacy and multisensory reading instruction on the school division intranet portal site. The JCPS portal site for elementary language arts provides general resources for balanced literacy, assessment, reading workshop, technology tools, words workshop, and writing workshop. In addition, extensive grade level curriculum frameworks describe content and skills taught, outline quarterly learning targets, curriculum big ideas, instructional practices, and assessments. For example, in addition to the 43-page 1st grade curriculum framework, reading and writing pacing guides are offered as resources. While these resources are not specific to multisensory reading instruction, their extensiveness provides literacy and teaching resources that support not only general education, but special education reading and language arts instruction.

The exceptional education school district portal page provides extensive resources that assist teachers in providing multisensory reading instruction. The multisensory reading instruction page includes lesson plans, instruction of new concepts, *Recipe for Reading* resources, red word resource, and three-part drill resources. An important tool for monitoring student progress is the document titled *Record of Mastery: A Structured Language Approach to Learning Phonics.* This document was intended to be a permanent record of progress for all students taught phonics through a structured language approach, such as multisensory reading instruction. This document has been referred to as the "green card" for its card-stock green paper that was intended to be

maintained in the students' student records with their general education literacy record of progress. Teachers in the focus group discussed the "green card," and two of the liaisons interviewed referenced this progress monitoring tool, reporting that evidence that this progress monitoring tool was being actively used and present in student's permanent record was inconsistent. The administrators in the focus group did not have an awareness of this tool. In fact, several interactions during the administrators' focus group indicated a need for the development and use of such a multisensory progress monitoring document!

An important resource developed for teachers was the *Literacy Action Plan*, a diagnostic and planning tool to assist teachers in matching the needed reading components to assist students with reading skill development. The *Literacy Action Plan* is an individualized student plan that summarizes reading assessment data, profiles student strengths and weaknesses, and plans interventions pertaining to each student's level of reading engagement, comprehension, fluency, sight word development, spelling, and word attack strategies. Part B of the student's *Literacy Action Plan* focuses on the plan for specialized instruction for the student aligned with the key components of the balanced literacy framework: reading workshop, words workshop, and writing workshop. A more detailed component of the plan delineates the specific provider and location of the specialized reading instruction during specific time periods of the balanced literacy instruction.

There are a multitude of literacy resources for general education reading/language arts instruction and an extensive array of resources to assist teachers with planning and

providing multisensory reading instruction for students. This physical evidence of these resources corroborates themes supported by survey, interview, and focus group responses that show the materials and resources provided for multisensory reading instruction are very helpful for teachers. Discussion of findings in this formative program evaluation of multisensory reading strategy instruction in Jefferson County Public Schools is discussed relative to the core evaluation questions.

Evaluation Question 1. What are the facilitating conditions and constraints in the Jefferson County Public School district's instructional initiative to provide multisensory reading strategy instruction for elementary students with disabilities?

The survey of selected elementary special education teachers providing multisensory reading instruction yielded 122 participants submitting responses to the 19 question online survey. As previously noted in Table 3, survey questions and responses pertaining to facilitating conditions and constraints regarding the implementation of multisensory reading instruction are included in survey questions 4, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19. Questions 4, 10, 12, 14, 16, and 18 provided responses to questions asking teachers to respond along a selected-response scale asking them questions regarding school-based and school district barriers to their implementation of multisensory reading instruction. Questions 11, 13, 15, 17, and 19 offered teachers an opportunity to write in comments pertinent to these areas of inquiry.

Facilitating Conditions

Facilitating conditions reflect those activities and supports in place that promote the teachers' provision of multisensory reading instruction. Summative survey data are

represented in Table 6 regarding teacher responses to the relative helpfulness of district-wide

initiatives affecting implementation of multisensory reading instruction. The special education teachers responding to the survey reported that the provision of instructional materials and resources was a facilitating condition. Almost 79% of the teachers surveyed reported "all required materials" were provided, with just over 20% of them reporting that "some materials" were provided. Regarding district-wide activities that support implementation of multisensory instruction, the teachers responding in the survey reported that the 30 hour, five-day professional development activity with the IMSE trainers was the strongest district-wide facilitating condition, with almost 85% of teachers rating this intensive professional development activity as "very helpful." Only one of the 112 teachers responding to that question reported that the training was minimally helpful, reflecting a strong endorsement of this instructional support. Teachers in the focus group also highly regarded the intensive initial professional development, "And I haven't talked to one teacher that didn't thoroughly enjoy that training." "I'm going to say the training we were given. The week training, I think, was very beneficial, and we are rarely trained that long on any program."

In the area of district-wide support, 68% of the teachers reported the provision of multisensory reading instruction resources and materials was "very helpful." When combined with 22% reporting that this was "somewhat helpful," a very high percentage of teachers found these resources were helpful in their instruction. Focus group, document review and interview data support this overwhelmingly positive view of the provision of instructional resources and materials. Some comments include: "...

multisensory ideas on the portal have also been helpful." "I do like that the program came as a complete package...I didn't have to supplement...It came as a package I could use right away." A majority of teachers (57%) reported that multisensory reading "share fair" activities were "very helpful" (14%) or "somewhat helpful" (43%). This included the sharing of useful instructional materials and instructional practices among teachers.

The support through consultation with the school division multisensory liaison responsible for coordinating multisensory reading instruction was viewed as a strong facilitating condition by 60% of the survey participants, with 32% of the respondents reporting this support as "somewhat helpful" and 28% reporting it as "very helpful." School administrator focus group members cited examples of the strong support this liaison provides to teachers and administrators to improve reading instruction. "We have had K__ come each year. Last year and she's come again this year.... to sit down with us and talk about individual students, look at their profiles, look at their learning plans and determine this child's needs."

While the plurality of respondents (44%) indicated that other district multisensory reading professional development "did not apply," a combined 45% of survey respondents rated other district professional development activities as "very helpful" (21%) or "somewhat helpful" (25%). This corroborated the reading liaison's interview comments that attendance at after-school professional development activities was sparsely attended, with limited impact on multisensory reading instruction.

Table 6.

Survey Results: District-wide activities that support teacher implementation of multisensory reading instruction

District-Wide Supports	N	Mean	Very Helpful (4)	Somewhat Helpful (3)	Minimally Helpful (2)	Not Helpful (1)	Does Not Apply
A. The 30 hour, 5 day professional development activity provided by the Institute for Multi-Sensory Education trainer	112	3.85	84.8% (95)	13.4% (15)	.9% (1)	0% (0)	.9% (1)
B. Attendance at multisensory reading "share fair" activities.	110	2.90	13.8% (15)	43.1% (47)	11.9% (13)	4.6% (5)	27.5% (30)
C. Other school district multisensory reading professional development opportunities	114	3.09	20.5% (23)	25% (28)	9.8% (11)	2.7% (3)	43.8% (49)
D. Observations of multisensory reading instruction and suggestions provided by special education specialist and liaisons	115	2.84	22.3% (25)	24.1% (27)	16.1% (18)	8.9% (10)	31.3% (35)
E. Consultation with the liaison who is coordinating multisensory reading instruction	112	3.06	27.9% (31)	32.4% (36)	12.6% (14)	5.4% (6)	22.5% (25)
F. Provision of multisensory reading instruction resources and materials	113	3.62	67.6% (75)	21.6% (24)	4.5% (5)	1.8% (2)	6.3% (7)

Teachers reported in the survey and these comments were noted in the teacher focus group, that the provision of multisensory reading instruction during the summer months and the supportive planning meetings setting up these school-based reading clinics, were facilitating conditions. These contributed to student learning of multisensory reading strategies and were fulfilling for teachers in focusing their instruction without the many competing needs of the regular school day.

The survey also asked teachers about school-based supports of teachers' implementation of multisensory reading, summarized in Table 7. Teachers rated the meetings among school special education colleagues that examine student reading

achievement data, share multisensory reading strategies, and help schedule reading interventions for students as the most supportive activity, with a combined 66% of respondents affirming these collegial professional learning activities in the school with 39% rating it "somewhat helpful" and 27% rating it "very helpful." This facilitating condition, the active sharing of data and ideas in professional learning communities was also the most frequently mentioned theme in open ended survey responses, interviews and focus groups as a strong facilitating condition. "All of the special education teachers in my building have been trained, so I often discuss students' progress and any questions or concerns I have with my colleagues." "It is also helpful to interface with other teachers in the building and see ways that they are using materials and assessing students." "We meet weekly. I am actually the team leader and I go to the literacy (leader) thing. So, when, I have my meetings weekly, if our principals haven't told me lots of stuff I need to share with them, then my meeting might be just multi-sensory, whatever I brought back from K__, S___, whatever." Strong school-based professional learning communities (PLCs) that meet regularly are viewed as strong facilitating conditions that enable implementation of multisensory reading.

With regard to teachers in the survey rating consultation with the school's multisensory "Literacy Leader," almost 47% combined respondents found the "Literacy Leader" role "very helpful" (24%) or "somewhat helpful" (23%), even though a plurality (36.4%) of teachers surveyed reported "does not apply" with regard to the helpfulness of this intended support. This corroborated teacher focus group data that revealed variability in the follow-up support provided by "Literacy Leaders" in their schools seen in focus group and interview data as both a facilitating condition and a constraint. The

following comments illustrate this variability: "I think having the special education lead teacher meetings has helped to share and problem-solve, as well as get information back to the teachers in each school." I mean, I know our literacy liaison (leader), bless her heart, she is everywhere and doesn't have time to give us what we need." "And I think that is obviously really helpful, but we don't always get the feedback at our school."

Table 7.

Survey Results: School-based activities that support teacher implementation of multisensory reading instruction

School-Based Supports	N	Mean	Very Helpful (4)	Somewhat Helpful (3)	Minimally Helpful (2)	Not Helpful (1)	Does Not Apply
A. Observations of my multisensory reading instruction and supervision provided by my school administrator(s).	109	2.42	11% (12)	23.9% (26)	19.3% (21)	16.5% (18)	29.4% (32)
B. Suggestions about my multisensory reading instruction from my school reading specialist/teacher.	110	2.61	12.7% (14)	17.3% (19)	9.1% (10)	11.8% (13)	49.1% (54)
C. Meetings among my school special education colleagues that examine student reading achievement data, share multisensory reading instructional strategies, and help schedule reading interventions for students.	111	3.05	27.3% (30)	39.1% (43)	11.8% (13)	5.5% (6)	17.3% (19)
D. Consultation with my school's multisensory reading "Literacy Leader."	112	2.93	23.6% (26)	22.7% (25)	10% (11)	9.1% (10)	36.4% (40)
E. The school master schedule provides flexible times to provide multisensory reading instruction to students who need it.	110	2.50	25.7% (28)	19.3% (21)	13.8% (15)	27.5% (30)	14.7% (16)

Teachers who reported in the survey that the school master schedule provided flexible times to provide multisensory reading instruction to students who need it, were

divided on this issue with the largest number of them (28%) noting that the master schedule was "not helpful" to their provision of multisensory reading instruction. This rating, along with the almost 14% who rated the school master schedule as "not helpful" in this respect, combined to represent 42% of the teachers viewing the master schedule as a constraint to their provision of multisensory reading instruction. It is interesting to note, however, that a combined 45% of the survey respondents rated the master schedule as a "very helpful" (26%) or "somewhat helpful" (19%) support for their provision of multisensory reading instruction.

Other teacher survey comments reveal administrative support for multisensory reading. "Much support from administration to help with scheduling and to assist me with ideas for individual students." "Administration allowed observations at another school that is quite successful in teaching reading to students with Learning Disabilities." "Our administrator ensures us that OG (Orton-Gillingham) time is sacred."

Constraints

Though survey question 10, represented in Table 7, was intended to ask information about school-based supports, some of the low responses to affirmative questions indicated a potential constraint affecting teachers' ability to implement multisensory reading instruction. In responses to survey questions pertaining to school-based supports of multisensory reading, a plurality (29%) of responses reported "does not apply" when asked how helpful were school administrator observations and supervision of teachers' multisensory reading instruction. An additional 36% of respondents rated this administrative supervision as "not helpful" (17%) or "minimally helpful" (19%). This totals almost 2/3 of teachers reporting that administrator observations and

supervision did not apply to them or were not helpful or minimally helpful supports to their multisensory instruction. See Table 7.

Teachers reported that supportive activities provided by their school reading specialist/teacher were limited. Half (50%) of the survey respondents reported that this support "did not apply" to them, with another 21% reporting that suggestions about multisensory reading instruction from the school reading specialist/teacher were "not helpful" (12%) or "minimally helpful" (9%). A combined total of 30% of the survey participants noted that this support was "somewhat helpful" (17%) or "very helpful" (13%). Teacher focus group discussion corroborated this general trend, noting that the role of the reading specialist/teacher in most schools was to focus primarily on the general education students and the special education teachers focus primarily on the multisensory reading instruction for students with disabilities. During the 2009-10 and 2010-11 school years, it should be noted, reading specialists from every school were invited to participate in the intensive 30 hour, 5 day IMSE training.

In Table 7, the plurality of survey respondents (36%) responded "does not apply" referring to consultation with their school's multisensory reading Literacy Leader. As noted earlier, the Literacy Leader is a special education teacher from the school who serves as a lead multisensory teacher, attending meetings and assisting colleagues with implementation and communication through meetings with the liaison coordinating multisensory reading in the school district. An additional combined 19% reported that this intended support was "not helpful" (9%) or "minimally helpful" (10%). While a total of 47% of respondents rated this Literacy Leader support as "somewhat helpful" (23%) or "very helpful" (24%), the majority of teachers (55%) reported that this support

was not evident or not helpful. This inconsistent support by the Literacy Leader is a constraint to implementation of multisensory reading instruction. The survey results, survey comments, focus groups, and interviews indicated that scheduling time in the school day was frequently mentioned as a significant constraint to the implementation of multisensory reading instruction by teachers.

When asked to look specifically at school district barriers that may interfere with their multisensory reading instruction, the plurality of teachers rated four central office conditions as "not a barrier" as shown in the Table 8. However, of those four conditions, 41% of teachers reported that the school district's balanced literacy schedule's lack of flexibility was either a "very significant" (18%) or a "significant" barrier for teachers in providing multisensory reading instruction. The scheduling the general education balanced literacy during the school day was a recurring theme in the administrator interviews as well and both of the focus groups.

Table 8.

Survey findings: Teachers perception of school district barriers to implementation of multisensory reading

School District Barriers	N	M	Very Significant Barrier 4	Significant Barrier 3	Minor Barrier 2	Not a Barrier 1	Does Not Apply
A. Special education central office support	111	1.18	0% (0)	3.6% (4)	8.1% (9)	73.9% (82)	14.4% (16)
B. Provision of multisensory reading instruction resources and materials	112	1.28	.9% (1)	4.5% (5)	14.4% (16)	73.9% (82)	7.2% (8)
C. School district balanced literacy schedule does not permit flexibility for this specialized instruction.	111	2.30	18% (20)	23.4% (26)	21.6% (24)	31.5% (35)	5.4% (6)
D. The opportunities for further professional development about multisensory reading instruction	111	1.58	2.7% (3)	6.3% (7)	29.7% (33)	48.6% (54)	12.6% (14)

Teachers also responded to survey questions regarding the school-based barriers that interfered with their multisensory reading instruction, with data summarized in Table 9. Teachers viewed time limitations in school master schedules and time available due to special education student caseload needs as the two significant barriers that interfered with their ability to provide multisensory reading instruction. Fifty-six percent of survey respondents reported time/flexibility in school master schedules as a "very significant" (31%) or "significant" (25%) barrier to implementation of multisensory reading. Approximately 70% of the teachers noted that time limitation due to student caseloads was a "very significant" (34%) or "significant" (36%) barrier to their provision of multisensory reading instruction. These two constraints were also evident in interview and focus group responses.

Table 9.

Teacher survey: School-based barriers affecting multisensory reading implementation

School-Based Barriers	N	Mean	Very Significant Barrier (4)	Significant Barrier (3)	Minor Barrier (2)	Not a Barrier (1)	Does Not Apply
A. Time/flexibility in school master schedule.	109	1.80	31.2% (34)	24.8% (27)	27.5% (30)	14.7% (16)	1.8% (2)
B. Time available to provide levels of multisensory reading instruction due to special education student caseload needs.	110	2.19	33.6% (37)	35.5% (39)	17.3% (19)	12.7% (14)	.9% (1)
C. Ability to learn and share with other multisensory trained teachers in my building.	110	2.00	11.9% (13)	16.5% (18)	28.4% (31)	40.4% (44)	3.7% (4)
D. My confidence in my skill level to provide multisensory reading instruction.	111	1.46	2.7% (3)	4.5% (5)	27.9% (31)	62.2% (69)	2.7% (3)
E. School reading teacher/specialist observation or suggestions.	111	1.12	4.5% (5)	2.7% (3)	4.5% (5)	50.5% (56)	37.8% (42)
F. School administrative observation, supervision and support	111	1.38	3.6% (4)	4.5% (5)	12.6% (14)	65.8% (73)	13.5% (15)

Another school-based barrier in Table 9 that teachers reported as a less significant constraint pertained to the ability of teachers to learn and share with other multisensory trained teachers in their building. While a total of 69% of respondents rated this as "not a barrier" (40%) or a "minor barrier" (28%), 29% viewed this factor as a "very significant" (12%) or a "significant" (17%) barrier. This corroborates teacher focus group data that describes the opportunity to share with colleagues in professional learning communities as inconsistent at various schools though highly valued in those places where it was practiced. This constraint is also discussed as a facilitating condition.

Teachers did not report that their confidence in their own skill level to provide multisensory reading instruction as a barrier to their implementation of multisensory reading instruction. Ninety percent of the respondents rated this factor as "not a barrier" (62%) or as a "minor barrier" (28%). The teacher and administrative focus groups discussed constraints regarding the assessment of students reading skills, with the teachers focusing on the inadequacy of the DRA2 to appropriately reflect all the skills and reading improvement that students gain through multisensory reading instruction. "Another issue with the DRA is that you are scoring fluency based on their reading rate, and if you are teaching a child to look at a word very carefully and think about where to divide it and how to pronounce it. And then you are penalizing them on the DRA for slowing down to take time to figure out a word." Teachers noted that responses for the lower grades DRA comprehension subtest have students orally retell the ideas of the story, with upper level grades expected to write key ideas about a story. These two student outputs, they noted, could well be part of their disability, impairing their overall DRA2 score. Another teacher shared an insight into these phenomena, "But I do see tremendous progress, and the same students, their DRA levels have not jumped significantly, but I see them applying it in everyday classroom work. They are reading. When they are writing, they can write more words using the features I have shown them. I see progress in lots of areas in their confidence level. It just maybe isn't translating. I am not seeing huge jumps. I can't say significant jumps." Another teacher noted that DRA2 levels were not improving even though she knows student skills and confidence have grown.

Over 50% of teachers surveyed reported that the school reading specialist/teacher observations or suggestions were "not a barrier" to implementation, though about 38% reported that this "did not apply" to their provision of multisensory reading instruction. This finding reinforced the perception of 49% of the teachers, discussed earlier, that the observations and suggestions of the school reading specialist/teacher "did not apply" as a support to teachers providing multisensory reading instruction.

As shown on Table 9, 66% of survey respondents reported that school administration observation, supervision and support were "not a barrier" that affected teacher implementation of multisensory reading instruction. A combined total of 80% of teachers indicated that this administrative observation, supervision, and support as a "very significant" (3.6%) or a "significant" (4.5%) barrier. It is important to note that teachers did not view administrator observation, supervision, and support as a barrier to teachers' provision of multisensory instruction. However, it is important to also note that 29% of these teachers did not view this administrative supervision as applying to them at all, with an additional 35% seeing administrative supervision as not helpful (16.5%) or minimally helpful (19.3%). The data reveal that administrative observation, supervision, and support for teachers implementing multisensory reading are a constraint. One teacher wrote, "My administrator knows less than me. My reading specialist knows nothing about multisensory. The Literacy Leader does not share information because we don't have time."

The teacher survey provided rich information from the open-ended responses regarding constraints to teachers providing multisensory reading instruction. The word "barriers" was used in the survey questions to refer to constraints, employing more

familiar terminology for teachers completing the survey. A barrier was defined in the survey as an obstacle that restrains, impedes, or interferes with the teachers' ability to provide multisensory reading instruction ((Stein, 1975). The coding of these open-ended responses revealed deeper explanations of the survey's selected-response items, often corroborating the survey data findings. Teachers added 44 comments regarding school district barriers and 37 comments regarding school-based barriers to their implementation of multisensory reading instruction as responses to questions 15 and 17 on the teacher survey.

The scheduling and time needed to provide this small-group and individualized reading instruction were recurring themes in the teacher comments. "Our schedule and requirements for small group implementation and word study by our reading specialists and administration really only allow for the few pull-out students we have to receive actual MSE (multisensory education)." Another theme that emerged from coding was the time constraints of competing academic needs. These three themes pertaining to scheduling, time, and competing academic needs were coded a total of 64 times in the open-ended survey questions pertaining to school-based and district constraints to teachers implementing multisensory reading instruction. "There is too much we are required to cover in balanced literacy, and unless we are relieved of some of this, I will not have adequate time to use these important strategies" "... it is the various grade levels scheduling within balanced literacy that becomes a barrier to pulling out a specific multi-grade level group to work on the same features." The survey comments also reflected constraints regarding the number of students on the teachers' caseloads and the

concomitant constraint of special education staffing at the elementary schools, with 12 teacher comments coded as staffing and caseload constraints.

Related to time and scheduling concerns was a theme that emerged from the 19 responses coded with the "mixed student groupings." This reflected the challenge teachers had scheduling students of similar reading ability for small group word study when multisensory reading instruction took place for most students in their school's balanced literacy schedule. As noted earlier, total daily time for word study is 20 to 30 minutes in grades K – 2 and 15 to 30 minutes for grades 3 – 5. Multisensory reading instruction consists primarily of strategies to assist students with word study, but also provides small group guided reading time to reinforce word study in the context of controlled text materials with students on similar reading skill levels. This teacher's comment summarizes these concerns: "The school schedule and the number of special education teachers available to cover the varying needs of our students based on IEP goals, service times, and settings (collaborative and pull-out) make it difficult to implement." Data from interviews and focus groups continue to highlight scheduling and time constraints during the school day that inhibit teachers' abilities to implement multisensory reading instruction. The teacher focus group included 16 codes, the highest number, pertaining to school schedule and time constraints related to implementation of multisensory reading instruction. Again related to this concern are the competing academic needs that include benchmark testing, assessing students for triennials, DRA2 testing, assisting students with classwork and testing accommodations, and providing collaborative teaching supports in inclusive general education classes. The complex role of the special education teacher in their responsibilities for caseload management,

provider of specialized instruction, and collaborative teacher in schools that have a variety of ways in which time, student, staff, and curriculum resources are scheduled during the school day.

The administrative focus group also addressed the constraints of time and scheduling, but not to the degree of the teachers. The highest frequency of coded responses included the apparent lack of use of progress monitoring tools by teachers. This was viewed as a constraint because several administrators knew of no multisensory reading skills progress monitoring tool that would be included in the students' records. Another significant constraint evident in administrators' coded responses were the barriers that teachers perceived in providing multisensory reading instruction to 3rd, 4th, and 5th graders versus the primary grade students. Comments included resistance by the upper grade students to publicly use tapping and pounding strategies to learn phonemes and syllables. A critical constraint upon which the administrators agreed with the teacher focus group was the many more competing academic challenges that 3rd, 4th, and 5th grade students experience, making it more difficult to schedule the time for multisensory reading instruction. These included Standards of Learning assessments, benchmark testing, and increasing volume of academic content.

Summary. Extensive survey data, interview responses, focus group discussion, and document review revealed the following facilitating conditions and constraints affecting the implementation of multisensory reading instruction in Jefferson County Public Schools, outlined below. It should be noted that facilitating conditions were not universally present, reflecting variability with fidelity of implementation. Some of these

facilitating conditions also could be considered constraints when inconsistently or negligibly evident in some schools, as survey and interview data reflected.

Facilitating Conditions

- Provision of 30 hour, 5 day IMSE professional development
- Consultations with the liaison coordinating multisensory reading instruction
- Provision of extensive multisensory reading instruction resources and materials
- School-based professional learning communities (PLCs) among special education teachers to review data, share strategies, and plan reading interventions for students based upon student needs
- School administrator support for multisensory reading instruction
- Literacy leader professional development, with representation for every school to expand capacity to support multisensory reading instruction
- School master schedules that do allow flexible small group instruction for students with similar reading needs are a facilitating condition at some schools
- Special education specialist and liaison support provided to schools in conjunction with the liaison coordinating multisensory reading

Constraints

- School master schedules that do not allow flexibility in scheduling individual and small group reading interventions
- Time to provide multisensory reading instruction within the balanced literacy framework

- Taking into consideration the complex roles that elementary special education teachers play: case manager, collaborative teacher, test accommodation coordinator and multisensory reading teacher
- Competing needs for academic time involving teachers and students, especially in grades 3, 4, and 5 where Standards of Learning assessments take place
- Teacher inconsistent use of common multisensory progress monitoring tool maintained in student cum folder
- Professional development activities, including multisensory refreshers, that need to be conveniently scheduled and creatively presented
- The assessment of student reading skills through the DRA does not align with the skills students learn in multisensory reading instruction. Discussion of assessments more aligned with multisensory skill instruction was discussed primarily in the administrator focus group.

Evaluation Question 2. What practices are in place to foster fidelity of implementation of multisensory reading strategies by teachers trained in these strategies?

Survey responses, interview responses, focus group discussion and document reviews reveal practices in place that can continue to foster the fidelity of implementation of multisensory reading strategies and largely parallel the facilitating conditions noted earlier. These practices that foster fidelity of implementation are listed with supporting data.

The special education reading liaison. This position was added to the special education central office staffing permanently during the 2010-11 school year. The liaison

who coordinates the implementation of the multisensory reading initiative in JCPS earned a master's degree in reading and works closely with the general education elementary reading language arts curriculum staff in efforts to align multisensory reading instruction with division curriculum, instruction, and assessment. While her role during the 2009-10 and 2010-11 school years was focused on coordinating the professional development of over 300 school division teachers and staff, her focus during the 2011-12 school year has been to coordinate and support the multisensory meetings and interventions at schools that the school division has determined as priorities for improving student achievement and Adequate Yearly Progress. In providing supports to schools, this liaison, an 11-month teacher contracted staff member, works closely with the three elementary specialists and the five elementary liaisons to provide supports to the school district Tier 3 and Tier 4 elementary schools and other schools where principals and specialists have asked her to intervene.

The provision of multisensory reading instruction resources and materials. This factor was among the highest rated in terms of a support to multisensory reading instruction. The school division provides a multitude of instructional resources through very detailed manuals and online resources to assist teachers in the lesson planning, pacing, instructional delivery, progress monitoring, and assessment involved in teaching reading for all students. The exceptional education resources that support multisensory reading are extensive and were described earlier. The multisensory reading instruction requires the provision of specific instructional materials and resources for teachers and students to use in their daily instruction. This has included not only the instructional

resources on the school division's intranet portal site, but supplies that include textured screens, sand, sand trays, white boards, and the syllable board.

Professional learning communities (PLC). The Literacy Leader cohort is a professional learning community of multisensory teacher representatives from every elementary school. Teachers and administrators in the focus groups mentioned time to plan, review data, and share ideas about multisensory reading instruction as a key activity that fostered teachers' provision of multisensory reading instruction in their schools. These PLCs are embedded professional development activities where teachers, with support, foster their professional growth in delivering quality instruction to students. Data revealed that more consistent leadership by the Literacy Leaders among all schools would foster stronger PLCs.

School administrator support for multisensory reading instruction. The assistant principals in the focus group, all of whom had relatively high levels of implementation of multisensory reading mentioned the support of multisensory reading instruction in their schools. The school administrative support by the principals and assistant principals included the provision of flexibility in the master schedule to allow for scheduling of the language arts and guided reading times to facilitate scheduling of small group multisensory reading sessions for students. This support included administrator observation and supervision of multisensory reading instruction, as well as the coordination with central office special education administrators and liaisons for assistance. While administrators in schools do extend support for multisensory reading instruction, less than 35% of the teachers viewed their observations and supervision as very or somewhat helpful, indicating that more consistency with this support is needed.

The specialist and liaison support. The three elementary specialists and five liaisons provide direct support to teachers and administrators and work closely with the liaison for multisensory reading instruction to assist teacher and schools with the fidelity of implementation of multisensory reading. These staff members assist the multisensory reading liaison in "multisensory sweeps," intense targeted observations, data review, and feedback sessions at selected schools based upon need. The liaisons have participated with the special education teachers in the 5 day, 30 hour multisensory professional development. This team approach strengthens the efforts of the liaison coordinating multisensory instruction, who benefits from broader leadership and support from central office staff.

School district support. The school district's support of multisensory reading is evident in the staffing of the position of the special education liaison whose responsibility is to assist teachers and schools in implementing multisensory reading. In addition, several school improvement plans include the implementation of multi-sensory reading instruction to address the reading achievement gap for students with disabilities.

Evaluation Question 3. To what extent is there fidelity of implementation and what factors may account for the variability in fidelity of implementation of multisensory reading strategies by teachers trained in these strategies?

Fidelity of implementation refers to the extent to which the program or intervention is implemented as designed (Benner, Wilson, Stage, and Ralston, 2010). As previously discussed implementation fidelity has five components:

- Adherence
- Duration

- Quality of delivery
- Participant responsiveness

The design of multisensory instruction, according to the IMSE education director and the Jefferson County Public School, is to provide differentiated levels of multisensory reading instruction based upon student needs. The liaison for coordinating multisensory reading instruction noted that the expectation communicated to teachers was that:

- Students whose reading achievement was 1 to 2 years below grade level received three 30 minute sessions of multisensory reading instruction per week, and
- Students whose reading achievement was 2 or more years below grade level received five 30 minute sessions per week.

Teachers responding to survey questions 6, 7, and 8 detailed their provision of multisensory reading instruction that asked how they differentiated the frequency and duration of weekly multisensory reading instruction based upon how far behind grade level their students were. In question number 6, teachers were asked the frequency of 30 minute sessions of multisensory reading instruction they provided to students 1 year behind grade level. As Table 10 shows, the mean provision of this level of multisensory instruction was 3.77 weeks, with more than 53% of the respondents providing these individual students with 4 and 5 multisensory sessions per week, more than recommended. While it may not be perceived as a problem to provide students with more services than they may need, it becomes a problem when that limited time is not being apportioned for more frequent multisensory sessions for students further behind grade level in their reading. In question number 7, the survey respondents reported weekly multisensory instruction for students 1-2 years behind grade

level in reading with a mean of 3.61, with almost 59% reporting that they provide these student s with multisensory instruction four times weekly (24.1%) and five times weekly (34.5%) . In question number 8, for students 2 or more years behind grade level in reading, approximately 39% of the teachers reported providing them with the recommended 5 sessions of 30 minutes per week of multisensory reading instruction. That means that approximately 61% of these students furthest behind grade level did not received the multisensory instruction with the frequency and duration that division staff recommended.

Table 10.

Survey results. Percentage of responses noting number of weekly multisensory reading sessions based upon years student is behind grade level in reading

Frequency of 30 minute sessions	1 year behind grade level	1 – 2 years behind grade level	2 or more years behind grade level
One time weekly (1)	11% (9)	8% (7)	9.4% (8)
Two times weekly (2)	18.3% (15)	9.2% (8)	9.4% (8)
Three times weekly (3)	17.1% (14)	24.1% (21)	14.1% (12)
Four times weekly (4)	20.7% (17)	24.1% (21)	28.2% (24)
Five times weekly (5)	32.9% (27)	34.5% (30)	38.8% (33)
Mean	3.46	3.61	3.78
N	82	87	85

It is evident from the responses to these three questions that teachers were not consistently providing multisensory reading instruction with fidelity in terms of adherence and duration components of the framework of implementation (Benner et al., 2010). Survey data have already explained constraints that lead to the variability of teacher implementation of multisensory reading instruction, including school master schedule restrictions, time restrictions, competing academic needs in the school day. Qualitative data confirm those contributing factors. The liaison coordinating the multisensory initiative noted in the interview, "I'd be continually surprised by observations at different schools of how teachers interpreted the training and lack of fidelity.....For example, rather than 5 days a week for 20 minutes a day, people are doing it for an hour twice a week. That's not the model." Such a decision may be driven more

for ease of scheduling for the teacher than driven by student needs or real school master scheduling restrictions, she noted. A teacher in the focus group agreed, noting, "It's a lot of work. There are teachers that don't want to put in the time." Another agreed, "It does take a lot of time. It is very intensive. You are still making and doing a lot of the work by yourself, putting things together and making materials."

In addition to the workload of multisensory reading instruction noted above, several comments addressing the challenging role elementary teachers have in schools with IEP case management, inclusion support, push-in and pull-out services scheduled through the day based upon individual student needs. A teacher focus group participant noted "... but I do have to say that if there is like one teacher that she had to back off from doing that program purely as it was, it was because of the pressure to serve, meet the child's other needs, the pressure..."

Evaluation Question 4. To what extent is there a correlation between the level of implementation of the multisensory reading instruction and reading gain scores for students with disabilities?

For this formative program evaluation, the researcher determined that the unit of measure for "level of implementation" would be the amount of time students participated in multisensory reading instruction from September, 2011, to the end of January, 2012, as expressed in hours, rounded off to the nearest .5 hour. The decision to utilize this unit of measure stemmed from the preliminary information gathered through interviews that there was a wide variety of implementation levels among elementary special education teachers. The unit of "hours" of multisensory reading instruction was determined to be one measureable variable that could be utilized for data analysis to determine a

relationship with student reading achievement outcomes. Teachers of high incidence students with disabilities provided the researcher with lists of students for whom they provided multisensory reading instruction, which included each student's name, disability, grade, and number of hours of multisensory reading instruction received. These teachers reported hours of multisensory reading instruction for 639 students. Researching the DRA2 data for all these students resulted in 422 students for whom DRA gain scores could be calculated and who were represented in the high incidence disability categories.

Table 11 provides descriptive statistics that summarize total student hours of multisensory reading instruction, DRA2 scores from June 2011, DRA2 scores from January/February 2012, and the DRA2 gain score with the range, mean and standard deviation for each. This data showed that the 422 students received an average of 28.24 hours of multisensory reading instruction ranging from 2 to 135 hours. The standard deviation of 17.81 indicates the variance of the data, which would indicate that 68% of the students in multisensory instruction received between 10.43 and 46.05 hours of this instruction if this group reflected a normal distribution. Over the course of 18 weeks during the first semester of the 2011-12 school year the students averaged 1.57 hours of multisensory instruction per week, the approximate equivalent of 3 thirty minute sessions per week. The beginning DRA2 averaged 15.09, reflecting "Early" stage reading with grade equivalency well under a 2nd grade. The standard deviation is 9.442, indicating that 68% of the students have DRA2 scores between 5.65 and 24.53. The Jan/Feb DRA2 was a mean of 18.32, approaching a 2nd grade level, "Transitional" stage reading. With a

standard deviation of 10.323, approximately 68% of the students have DRA2 scores between 8.00 and 28.64.

Table 11.

Multisensory hours of instruction, DRA2 data, descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Total MS Hours	422	2	135	28.24	17.812
Beg. DRA2-6/201	422	0	40	15.09	9.442
DRA2-Jan/Feb 2012	422	1	50	18.32	10.323
Gain	422	-4	16	3.23	2.749
Valid N	422				

Table 11 reflects the average gain in DRA2 score between June 2011 and January/February 2012 for students with disabilities in this sample was 3.23. To compare this growth with expected benchmark levels, during 1st grade students are expected to grow from a previous year's spring DRA2 benchmark level of 3 to February/March DRA2 level 12, a gain score of 9. Expected benchmark growth for 2nd grade would reflect a spring DRA2 level of 16 to a midyear benchmark level 24, a gain score of 8. The average gain score for the students with disabilities in this sample of 3.23 reflects less than half the expected gain score for 1st and 2nd grade students.

Table 12 illustrates hours of multisensory reading instruction, beginning DRA2 level, ending DRA2 level and DRA2 gain score per grade level. The "Expected DRA2 gain score" in the Table 12 represents the expected DRA2 score gain for students from prior grade June testing to ending mid-year testing. The 3rd grade students represent the

largest grade representation in the student sample, with 116 students. The 5th grade students represented the largest average DRA gain score of 4.03. DRA2 gain scores refer to the gain in reading achievement between the June 2011 administration of the DRA2 and the January/February 2012 administration. As mentioned earlier, DRA2 was not administered to Kindergartners in June 2012, so this grade level includes only 1 student of the 422 students with high incidence disabilities that are included in this study. Table 12 displays the mean and standard deviation of the student scores on the DRA2 administered in June 2011 and January/February 2012. Because DRA2 scores and ranges are aligned to grade level performance, it is important to view DRA2 means and standard deviations relative to the grade placement of the student. This is done in Table 12, where means and standard deviations of June 2011 DRA2, January/February 2012 DRA2, and DRA2 gain scores are compared with grade level expected DRA2 gain. Table 12 shows, for instance, that 42 first grade students averaged a DRA2 score of 3.07 in June 2011, and averaged a DRA2 score of 4.98 in the January/February 2012 DRA2. The DRA2 gain score for them averaged 1.90 when the expected DRA2 gain would have been 9. The 1st grade level expectation was to demonstrate DRA2 gains from level 3 in June 2011 to level 12 in January/February 2012.

Table 12.

Total MS Hours Beg. DRA2 – 6/2011 DRA2 – Jan/Feb 2012 Gain by Grade

Grade	N		Total MS Hours	Beg. DRA2 – 6/2011	DRA2- Jan /Feb 2012	Gain	Expected DRA2 Gain
01	42	Mean (SD)	41.78 (32.03)	3.07 (2.08)	4.98 (3.19)	1.90 (1.92)	9 *Beg. 3, End 12
02	88	Mean (SD)	29.11 (14.50)	9.64 (4.86)	12.97 (5.42)	3.33 (2.24)	8 * Beg. 16, End 24
03	116	Mean (SD)	26.01 (16.92)	15.18 (6.89)	18.00 (7.35)	2.82 (2.03)	10 *Beg. 28, End 38
04	104	Mean (SD)	28.16 (14.04)	19.64 (8.94)	23.22 (9.94)	3.58 (3.41)	12 *Beg. 38, End 50
05	71	Mean (SD)	23.08 (11.69)	22.37 (9.85)	26.39 (10.77)	4.03 (3.32)	10 * Beg. 50, End 60
KG	1	Mean (SD)	13.70	.00	3.00	3.00	End 3
Total	422	Mean (SD)	28.24 (17.81)	15.09 (9.44)	18.32 (10.32)	3.32 (2.75)	

* *"Beg." represents expected DRA2 level June the prior grade and "End" represents the expected DRA2 level for mid-year. This data parallels timeline of extant DRA2 data used.*

It should be noted that after, DRA2 level of 38, DRA2 score levels become more broadly representative, with no DRA2 levels other than 40, 50, and 60.

Table 13 displays means and standard deviations of hours of multisensory instruction, beginning DRA2 levels, ending DRA2 levels, and gain scores for the 422 students according to the "high incidence" disability areas. All the disabilities had comparable mean number of hours of multisensory instruction, roughly averaging between 25 and 28 hours of multisensory instruction from September 2011 through

January 2012. Mean gain scores ranged from 1.75 for students with intellectual disabilities to 3.55 for students with other health impairment.

Table 13.

Total MS Hours Beg. DRA2 – 6/2011 DRA2 – Jan/Feb 2012 Gain by Primary Disability

Primary Disability	N	Total MS Hours	Beg. DRA2 – 6/2011	DRA2-Jan/Feb 2012	Gain
ED	10	27.55 (18.91)	14.10 (8.23)	16.20 (9.45)	2.10 (1.52)
ID	36	25.50 (21.48)	7.00 (6.81)	8.75 (8.07)	1.75 (1.95)
OHI	119	28.66 (16.26)	15.37 (10.61)	18.92 (11.19)	3.55 (2.78)
SLD	257	28.45 (17.98)	16.14 (8.70)	19.46 (9.54)	3.32 (2.80)
Total	422	28.24 (17.81)	15.09 (9.44)	18.32 (10.32)	3.32 (2.75)

A correlation coefficient employing Pearson r was used in determining the correlation between the continuous variables, hours in multisensory reading instruction, and the DRA2 gain score.

Table 14.

Correlation between DRA2 gain score and student hours of multisensory reading instruction

Correlates	N	DRA2 Gain
Hours of Instruction	422	- .063
DRA2 Gain		

*= $p < .05$

As Table 14 indicates, the correlation between hours of student multisensory reading instruction and the DRA2 gain score is - .063, which means that this correlation is close

to zero. This relationship was not statistically significant, which means that it may have happened by chance. Therefore, no statistically significant relationship was found between the number of hours of multisensory reading instruction and the students' DRA2 gain score.

Recommendations Regarding Multisensory Reading Instruction

Survey respondents and interview and focus group participants made several recommendations. Table 15 summarizes the scaled responses from the survey question asking teachers' recommendations for sustaining and improving the implementation of multisensory reading instruction. Recommendations for improvement with the highest rankings included the provision for more staffing in schools to address individualized instruction needed by students, with over 70% of the teachers viewing this as a critical or important need and the provision of greater flexibility in the school master schedule so that teachers could schedule the multisensory instruction, with over 67% of the teachers seeing this as a critical or important need.

Table 15.

Teacher survey responses: Recommendations

	N	Mean	Critical Need (4)	Important Need (3)	Minor Need (2)	Not Needed (1)	I Don't Know
More detailed curriculum materials with sample lesson plans and lesson plan templates.	109	2.49	11.9% (13)	45.0% (49)	22.0% (24)	20.2% (22)	0.9% (1)
Additional professional development opportunities.	111	2.38	10.8% (12)	35.1% (39)	28.8% (32)	20.7% (23)	4.5% (5)
Additional observation and coaching on my instruction.	110	1.91	4.5% (5)	16.4% (18)	41.8% (46)	34.5% (38)	2.7% (3)
Provision of flexibility in the school master schedule so that I can schedule this instruction.	111	2.89	36.0% (40)	31.5% (35)	14.4% (16)	16.2% (18)	1.8% (2)
Additional staffing in my school to help us address the individualized instruction needed by students.	112	3.12	48.6% (54)	21.6% (24)	17.1% (19)	9.9% (11)	3.6% (4)
Assessment instruments that will help me in diagnosing student skills and monitoring student progress.	111	2.39	14.4% (16)	33.3% (37)	27.0% (30)	23.4% (26)	1.8% (2)
Opportunities to meet regularly with my teaching colleagues to share data and ideas about multisensory reading instruction.	114	2.55	17.9% (20)	35.7% (40)	26.8% (30)	17.9% (20)	3.6% (4)

Other participants had recommendations. The IMSE leader recommended that the school district explore a different reading assessment, such as *Read Naturally,* that would be more aligned with multisensory teaching. In addition, she recommended that strong multisensory teachers mentor other teachers, coaching colleagues to improve implementation and that teachers be held accountable to provide the multisensory instruction through observation, supervision, and evaluation. The liaison coordinating the multisensory reading recommended a comprehensive curriculum for multisensory as a strong resource for teachers The administrator focus group recommended progress

monitoring tools, alternative professional development that could include online refreshers, video training, or the use of Blackboard to provide professional development.

Summary

An abundance of quantitative and qualitative data provided rich information for data analysis pertaining to the four evaluation questions. A deeper understanding of the implementation of multisensory reading initiative in Jefferson County Public Schools has emerged. Chapter 5 will discuss these findings in the context of the four evaluation questions. In addition, discussion of implications for professional development, program evaluation, sustaining organizational change, with specific recommendations for greater facilitating fidelity of implementation of multisensory reading in Jefferson County Public Schools to improve reading outcomes for students with disabilities.

Chapter 5

Conclusions

School districts nationally are being held accountable to improve the achievement of all students. The achievement gaps between students with disabilities and non-disabled students have remained fairly consistent, including the achievement gap in reading skills as shown by national assessments and state assessment programs. School districts such as Jefferson County Public Schools researched evidence-based practices in an effort to close the reading achievement gap between students with disabilities and their on-disabled peers. The school district's special education staff determined that providing high incidence students with disabilities who demonstrated poor decoding skills with multisensory reading instruction would improve student reading achievement. The school district contracted with the Institute for Multi-sensory Education (IMSE) to provide an intensive, five-day, thirty hour multisensory reading professional development for over 300 special education teachers and reading teachers. In addition to this training, teachers received extensive curriculum materials and supplies all funded through the federal Title VI, Part B, Individuals with Disabilities Education Act grant and The American Reinvestment and Recovery Act of 2009, also referred to as "stimulus" funding.

Discussion of Findings

The implementation of the multisensory reading initiative began with very limited planning to sustain the very intensive and skillful training that all professionals appreciated. The planning to provide this needed training to almost every elementary special education teacher was viewed as a tremendous opportunity to utilize "stimulus" funding to directly support research-based multisensory reading instruction for students

with disabilities. This was a very concrete, deliberate series of steps to address evident reading achievement gaps between students with disabilities and their non-disabled peers. As noted in the literature review, the importance of improving the reading skills for elementary students with disabilities could serve as a "value-added" benefit toward improving student achievement in all other subject areas when that required reading. The long-range benefits of improving student reading skills at the elementary level would provide lasting benefits for students through middle and high school, contributing toward effective citizenship in a global society.

Implementation of multisensory reading instruction in JCPS. Jefferson County Public Schools' special education leadership determined that providing teachers with skills and resources to improve the reading achievement of students with disabilities would be a wise investment of IDEA grant "Stimulus" funds available for two years. The school district scheduled intensive 30 hour, five day professional development activities with the IMSE trainers with the goal to have all elementary special education and reading teachers trained. Multisensory reading instruction was being provided in every one of the 38 elementary schools in Jefferson County. Teachers reported that at least 630 students had received multisensory reading instruction during the fall semester of the 2011-12 school year. Nevertheless, anecdotal reports and observations by the liaison coordinating multisensory reading instruction indicated that implementation was not being done consistently with fidelity to the design of the multisensory reading program.

Due to the fact that one JCPS staff member was coordinating the implementation of this effort at 38 elementary schools, the challenge to coordinate the multiple professional development sessions and resource allocations to teachers interfered with the

amount of much-needed follow-up with trained teachers soon after they participated in the initial professional development. The liaison coordinating the implementation of multisensory reading instruction noted in her interview that only this year has she been able to provide more frequent, systematic follow-up with schools and teachers, due to her need to focus on training for most of the past school years.

The implementation of multisensory reading instruction has varied due to these challenges of providing extensive support for over 300 teachers immediately after their training. Survey questions that asked teachers to report frequency and duration of multisensory reading sessions based upon their student profiles of reading deficits revealed that teachers were not adhering to the amount of instruction for students as recommended by the trainers and the liaison coordinating multisensory reading instruction. Data analysis revealed, contributing factors to variability in implementation were the challenges teachers faced scheduling small group and individualized time to provide this specialized instruction. School master schedules that cluster all grade levels of language arts instruction within a narrow time span during the school day made it difficult for special educators to schedule multisensory reading instruction. In addition, the multiple roles that special education teachers play as co-teachers, IEP case managers, and specialized instruction providers limited their ability to schedule specialized instruction and ensure that the program was implemented with fidelity. The teachers also noted that there was much consistent implementation when the teachers had shared planning in professional learning communities at their schools.

The administrator focus group participants reported the strongest implementation, likely due to their own schools' relatively high level of implementation as determined

through collaborative scoring of a school implementation rubric. These elementary assistant principals noted high levels of teacher commitment, their master schedule facilitating implementation, the teachers' shared planning in professional learning communities, and the support of school administrators as key factors to the successful implementation of multisensory reading instruction.

Constraints and facilitating conditions affecting implementation of multisensory reading instruction. Extensive survey data, interview responses, focus group discussion, and document review revealed the following facilitating conditions and constraints affecting the implementation of multisensory reading instruction in Jefferson County Public Schools, outlined below.

Facilitating conditions. A number of facilitating conditions were identified by the participants in this study. It should be noted that these facilitating conditions were not universally present, reflecting variability with fidelity of implementation. Building upon these conditions with broader and deeper fidelity of implementation will sustain and strengthen the multisensory reading initiative. These facilitating conditions include:

- Provision of 30 hour, 5 day IMSE professional development
- Consultations with the liaison coordinating multisensory reading instruction
- Provision of extensive multisensory reading instruction resources and materials
- School-based professional learning communities (PLCs) among special education teachers to review data, share strategies, and plan reading interventions for students based upon student needs
- School administrator support for multisensory reading instruction

- Literacy leader professional development, with representation for every school to expand capacity to support multisensory reading instruction
- School master schedules that do allow flexible small group instruction for students with similar reading needs are a facilitating condition at some schools
- Special education specialist and liaison support provided to schools in conjunction with the liaison coordinating multisensory reading

Constraints. A number of constraints were also identified by the participants in this study. These include:

- School master schedules that do not allow flexibility in scheduling individual and small group reading interventions
- Time to provide multisensory reading instruction within the balanced literacy framework
- Taking into consideration the complex roles that elementary special education teachers play: case manager, collaborative teacher, test accommodation coordinator and multisensory reading teacher
- Competing needs for academic time involving teachers and students, especially in grades 3, 4, and 5 where Standards of Learning assessments take place
- Teacher inconsistent use of common multisensory progress monitoring tool maintained in student cum folder
- Professional development activities, including multisensory refreshers, that need to be conveniently scheduled and creatively presented

- The assessment of student reading skills through the DRA does not align with the skills students learn in multisensory reading instruction. Discussion of assessments

  more aligned with multisensory skill instruction was discussed primarily in the administrator focus group.

Correlation between student multisensory instruction and DRA2 gain scores. This study sought to determine if there was a correlation between the number of hours of multisensory reading instruction that students were provided and the DRA gain scores based upon test administration between June 2011 and February 2012. The DRA gain score was determined by subtracting each student's June 2011 DRA score from the student's January/February 2012 DRA score. The 422 students with high incidence disabilities of specific learning disability, other health impairment, mild intellectual disability, and emotional disability made up the pool of student participants for which gain scores and hours of multisensory instruction could be calculated.

Hours of multisensory instruction. The hours of multisensory reading instruction, as noted in Table 11, varied from 2 hours to 135 hours per student over the course of the fall semester of the 2011-12 school year. This descriptive data illustrated the wide variance of implementation of multisensory reading instruction. With the average of 28.24 hours and a standard deviation of 17.81, the hours of multisensory instruction for 68% of the group range between 10.43 hours and 46.05 hours. Averaging that range over 18 weeks of instruction during the first semester, 68% of these 422 students received multisensory reading instruction ranging from .58 hour to 2.56 hours per week of multisensory reading instruction. Some of the range in hours reflected

students who may not have received the multisensory reading instruction for the entire 18 weeks of the first semester. Teachers were asked to list all students receiving instruction during the first semester. Some of the teachers reported on the summary that some students were newly identified for multisensory reading instruction, or that some students were withdrawn as participants in multisensory reading instruction.

The hours of multisensory reading instruction that were reported by grade level on Table 12 show that 1st graders averaged the highest number of hours of multisensory reading instruction at 41.78 hours, but reflected the highest variance with a standard deviation of 32, meaning that 68% of these students' hours of multisensory reading instruction ranged from 9.78 hours to 73.78 hours. Second graders averaged the second highest number of hours of multisensory reading instruction, with a mean of 29.11 hours and a standard deviation of 14.5, with 4th graders, third graders, and fifth graders ranked below them in that respective order of average hours of multisensory reading instruction per student. The standard deviation for these four grade levels ranged from 11.7 to 16.9, not reflecting the wide variance shown in the 1st grade.

When the hours of multisensory reading instruction are viewed relative to the student disabilities as in Table 11, it was apparent that the great majority of multisensory reading instruction was being provided to students with specific learning disabilities and students with other health impairments. Students with specific learning disabilities make up 257 of the 422 student in the study, with a mean of 28.45 hours of multisensory reading instruction. Students with other health impairments represented 119 of the study participants, averaging 28.66 hours of multisensory reading instruction. Of the four categories of disability, the students with specific learning disabilities (SLD) and other

health impairments (OHI) reflected the lowest variance with standard deviations of 16.26 (OHI) and 17.98 (SLD). For all four of the disability areas, the average multisensory hours of instruction were comparable, ranging from a mean of 25.50 hours for students with intellectual disabilities (ID) to a high mean of 28.66 hours for students with OHI.

DRA2 gain scores. The DRA2 gain scores of students with disabilities were much lower than expected gains, even with the understanding that these students with disabilities had demonstrated lower DRA2 scores in the June 2011 administration than their non-disabled peers. As teachers, administrators, special education leaders, and the IMSE leader all indicated in the survey, focus groups, and interviews, the DRA2 may be the school district's preferred reading assessment, however it does not measure the decoding skills that a student may demonstrate through multisensory reading instruction. In fact, teachers noted that the students' disabilities may interfere with their final DRA2 score due to the method for expressing their comprehension of the passage. For example, when students are asked to provide a verbal summary of the key points to a story, some students with short-term memory problems would score low even though their reading skills may not be a problem. In the later elementary grades, students are to provide written responses to demonstrate their reading comprehension skills. Students who may have writing or fine motor deficits would score low not because of reading deficits but because of writing deficits.

There was no statistically significant relationship between the number of hours of multisensory reading instruction and the students' DRA2 gain score. While this correlation reflects no statistically significant relationship between these two variables, some questions about these data may serve to explain this phenomenon. As noted earlier,

teachers indicated that student performance on the DRA2 did not reflect some of the skills and strategies that the students were learning in multisensory reading instruction. In addition, factors such as slower than needed instructional pacing could play a role in lower than expected student achievement. If teachers are not providing instruction with fidelity of adherence, duration and quality, then it would be difficult to document consistent student gains in DRA2 reading achievement assessments.

Professional Development and Multisensory Reading Instruction

It is important to reiterate that teachers and administrators viewed the initial 30 hour, 5 day multisensory reading professional development provided through the Institute for Multi-sensory Education as very positive and a significant facilitating condition. Nearly half (45%) of the teachers rated other district professional development activities as somewhat or very helpful. Fewer reported that "share fairs" were helpful.

Of note are recommendations from teachers and administrators to ensure more time for teachers to engage in observation, data discussion, reading strategies review, and lesson planning with the special education teachers in their buildings. This expressed need embodies the Learning Forward standard of professional development addressing Learning Communities, which emphasizes that educator effectiveness is increased within professional learning communities seeking continuous improvement and collective responsibility. Survey and interview data confirm that school-based special education PLCs are in place in JCPS elementary schools, but survey data confirmed that almost one third of teachers surveyed found that meetings among schools' special education colleagues that examine student reading achievement data, share multisensory reading strategies, and help schedule reading instruction were not helpful or were not evident.

Standards of Program Evaluation in the Study

This formative evaluation exemplified propriety in the provision of informed consent, the protection of participant identity in documents and the respectful and fair treatment of participants. This was evident in recordings of focus groups and interviews, a review of written communications with participants, and the inclusion of a focus group co-facilitator to ensure that the administrative role of the researcher would not interfere with the open flow of conversation in that setting. The utility standard is exemplified in the school district's commitment to ensure the completion of the formative program evaluation to sustain an important instructional practice valued by school district special and general education leaders. Following completion of this program evaluation, school district leaders offered to schedule discussion of these results and recommendations by school district administrative leaders. Special education leaders planned meetings to analyze program evaluation findings and plan action steps based upon the findings, using the results to make program changes as needed. The program evaluation has met the feasibility standard in its involvement of an efficient, limited numbers of school district staff, including school administrators (8), special education leaders (3), the staff trainer (1) and teachers (7) in interviews and focus groups. The use of extant student achievement data ensured that no additional student assessments were required for the study. Teachers' provision of each student's estimated hours of multisensory reading instruction already documented in teacher lesson plans and logs reduced the teachers' time in collecting data for the program evaluation. The 19 question online survey further ensured that inordinate resources of time, material and personnel were not expended in this program evaluation. The accuracy standards were exemplified in researcher re-

checking data collection with original sources, verifying transcript accuracy, uses of systematic, established data analysis tools, with clear, thorough, accurate, valid and reliable interpretations of data, findings and conclusions (Gall et al., 2003).

Triangulation of data was a critical factor in assuring the validity of findings in this formative program evaluation. Patton (2002) describes several ways triangulation is employed by researchers. Methods triangulation was practiced in this study through using survey, interview, focus group and achievement data analysis. Multiple focus group analysts strengthened the analysis of focus group data. The qualitative software allowed the researcher triangulate the multiple qualitative data sources, with charting of codes from multiple participant responses and the multiple methods.

Recommendations Regarding Multisensory Reading Instruction

Multisensory reading instruction is a valuable tool that special education teachers can employ to address the specific decoding and word analysis skills that some students have not mastered. Jefferson County Public Schools invested several hundred thousand dollars in the professional development and resource support for over 300 elementary and middle school teachers in an effort to improve the reading achievement of students with disabilities. While this program evaluation focused on the teachers and students with high incidence disabilities, these recommendations will likely be applicable to any teacher or school implementing multisensory readers instruction for students with disabilities.

1. Explore additional and effective professional development activities to continue the professional growth of teachers trained in multisensory reading instruction. Focus group assistant principals recommended video or online professional

development opportunities that teachers could access from school or home. A coordinated approach to professional development should be provided that differentiates learning goals and content based upon the teachers' varied levels of implementation of multisensory reading instruction. Professional development activities should include a mandatory refresher professional development for teachers who have not provided multisensory reading instruction on a regular basis. This refresher will be an opportunity to sharpen skills that may have dulled due to inconsistent teaching of multisensory strategies to students.

2. Celebrate and publicize reading gains made by students with disabilities who have participated in multisensory reading instruction. Building a culture of change requires widespread awareness that positive student outcomes can result from effective multisensory reading instruction.
3. Develop consistent, required progress monitoring tools so that student skill development can be ongoing and accessed in their student records. This progress monitoring tool is available to teachers, but needs to be supported district-wide as a required component of a student record for those students who need this instruction.
4. Research reading assessments to determine whether an alternative assessment to the DRA2 may be preferable. While the DRA2 may serve as the school district's global reading assessment, its focus on engagement, fluency, and comprehension does not provide a detailed description of students' decoding skills as they developed through multisensory reading strategy instruction. This was a concern expressed in the teacher focus group, as well as during interviews with the IMSE

leader, specialists, and liaisons. A review of IMSE assessment tools, existing progress monitoring tools and alternative assessments should be undertaken.

5. Foster the continued development of Professional Learning Communities (PLCs) among the special education teachers where on a weekly or other regular basis, teachers can meet to analyze student reading achievement data, to target needed reading interventions based upon student need, to share instructional strategies that reflect fidelity of instruction with multisensory reading instruction and to plan together to meet the reading instructional needs of students with disabilities in their schools. The results indicated that the role and responsibilities of the Literacy Leader should be further clarified and strengthened to ensure more consistent multisensory reading leadership at the school level to help foster stronger PLCs.
6. Develop accountability procedures to strengthen the implementation fidelity of multisensory reading instruction. This would include the development of an observation form for school administrators to use to observe and provide feedback to teachers who are providing multisensory reading instruction. This would be supplemented by professional development for principals and assistant principals to inform them of the "look-fors" in their observations of teachers providing multisensory reading instruction. With a heightened role of student performance growth measures in teacher performance evaluations, clarification of expectations through these evaluation procedures will help to broaden and deepen implementation.

7. Disseminate to principals and assistant principals examples of school master schedules that provide for the greatest flexibility in scheduling guided reading and word study time where most of the multisensory reading instruction takes place. The schedule limitations were viewed overwhelmingly as the greatest impediment to teachers having time to provide multisensory reading instruction to students with disabilities. All the survey, interview, and focus group data sources revealed that there are elementary schools where the master schedule allows significant flexibility and focus on reading language arts instruction. These scheduling models should be disseminated through principal meetings, other professional development activities, and promoted by school division leaders.
8. Develop a detailed universal curriculum for multisensory reading instruction that includes detailed lesson plans, materials, and pacing information to assist teachers with day-to-day instruction. Teachers and administrators expressed strong satisfaction with the multisensory reading instructional materials and resources provided at the initial training and through the school district's portal site. This was confirmed in the document review. An integrated curriculum, provided online and in a hands-on manual, would further assist teachers' implementation of multisensory reading instruction.
9. Include the implementation of multisensory reading instruction as an action step in schools' annual School Improvement Plans as long as significant reading achievement gaps are evident between students with disabilities and their non-disabled peers.

10. Collaborate with JCPS general education reading and language arts specialists and teacher consultants to continually refine the integration of multisensory reading instruction as an integral part of the division's balanced literacy framework. Teachers and administrators in surveys, focus groups, and interviews expressed a desire for the elementary general education teachers to understand multisensory reading instruction and support its implementation. Teachers in the focus group and the survey concluded that multisensory reading instruction should be provided to all Kindergarten and 1st grade students, embedded in the general education curriculum.
11. Study and make recommendations regarding the teacher and instructional assistant staffing assigned to schools that affects the ability of teachers to provide highly specialized instruction while being responsible for co-teaching, case management, IEP development, evaluations and other responsibilities.

Recommendations for Future Program Evaluation and Research

The formative program evaluation was intended to assist the school division in ascertaining the implementation of a worthwhile reading instructional initiative. This program evaluation assessed multiple inputs, activities, outputs, and outcomes as described in the logic model of multisensory reading instruction in Jefferson County Public Schools. As a review of program evaluation and change literature has revealed, program evaluation and change process steps should be built into programs at their proposal phases. This is precisely what Havelock and Hamilton (2004) suggest in the "Care," "Relate," and "Examine" phases of their cycle of guiding change. As described earlier, Jefferson County Public Schools' special education department recognized the

problem of significant gaps in reading achievement between students with disabilities and their non-disabled peers. The relatively short window of opportunity to take advantage of supplemental funding through "Stimulus" ARRA funding forced school staff to move quickly toward gaining support for and beginning the multisensory reading instruction professional development initiative. Building program evaluation into the initiative with continued planned assessment of breadth and depth of implementation was considered after the initial series of professional development activities.

The following schedule of program evaluation is recommended as aligned with Havelock's and Hamilton's (2004) model. At each stage of program evaluation outlined below, the name of the stage in Havelock's and Hamilton's cycle is in parentheses.

- May/June 2012 – Discuss and present program evaluation results with special education leaders, division leadership, school administrators, and teachers. (Relate)
- June 2012 - Develop checklist of follow-up actions in response to this formative program evaluation. (Examine)
- June/July 2012 – Determine timeframe for implementation of recommendations. (Examine)
- Summer 2012 – Determine resources needed for actions/solutions addressing recommendations. (Acquire)
- Fall 2012 – Implement actions to address recommended solutions. (Try)
- Fall semester, 2012-13 – Extend solutions to a wider group of administrators and teachers based upon school, teacher, and division needs. (Extend, Care, and Relate)

- Spring semester, 2013 – Assess the status of implementation based upon the follow-up regarding recommended actions. (Examine)

Moving ahead, the special education department of JCPS should research other school division models of implementing Orton-Gillingham multisensory reading strategies to learn not only ideas for effective implementation, but how JCPS can develop a comprehensive curriculum, as recommended.

All of the above actions will ensure that a cycle of continual program evaluation that can guide lasting change will result in more substantial implementation. Beyond the 2012-13 school year, the special education department should schedule an annual program evaluation report of the multisensory reading initiative to be shared with the school district leaders. The implementation of accountability measures will help sustain this literacy initiative. It is recommended that the multisensory reading initiative be scheduled for a formal program evaluation as scheduled through the Office of Research and Planning on the division's schedule of program evaluations. A strategic question addressed is how should Jefferson County Public Schools' special education and school district leadership establish program evaluation procedures for this and other instructional initiatives as an integral part of these program initiatives? Lastly, what professional development plan should be established to strengthen implementation of specialized reading instruction that can improve students' reading achievement outcomes?

Final Thoughts

The need to improve the reading abilities of a significant number of students with disabilities was critical, especially at the elementary level in JCPS. Continued evidence of significant achievement gaps spurred JCPS special education leaders to provide

elementary special education teachers with professional development and resources so they could provide multisensory reading strategy instruction for students who needed it. While constraints and inconsistent implementation have been evident, it is important to note that focus group, survey, and interview data reveal an appreciation for the training, material support, and expert assistance that have been integral to this endeavor. Data reveal that students are learning the reading strategies and increasing their confidence in reading. While these positive outcomes did not positively correlate with DRA2 gain scores as hoped, future data analysis with more appropriate measures that are more closely aligned with the decoding strategies may reflect strong student reading achievement gains. Analysis over a longer term may likely demonstrate improvements in reading skills that include word analysis, spelling, fluency, and comprehension. As teachers more consistently practice this reading instruction with fidelity, it is hoped that student reading achievement outcomes will consistently grow. Stronger readers at the elementary level will result in literate, lifelong learners.

Program evaluation is a critical function for any comprehensive initiative such as division-wide implementation of multisensory reading. As the initiative continues, its success will hinge upon continual assessment and examination of processes and outcomes using research-based models of program evaluation. It is hoped that this formative program evaluation will assist in strengthening the implementation of this multisensory reading initiative so that more students can benefit from effective, research-based reading instruction.

Appendices

Appendix A
Teacher Survey - Multisensory Reading Instruction
Participation Letter, Informed Consent

Dear Jefferson County Special Education Teacher,

Background Information
You are being asked to participate in a survey regarding your experiences with multisensory reading strategy instruction. This survey is part of a doctoral dissertation with the College of William and Mary School of Education by Michael Asip in conjunction with Jefferson County Public Schools as a formative program evaluation of multisensory reading instruction for students with disabilities. You may contact Michael Asip at (804 594-1732), his dissertation chair, Dr. Megan Tschannen-Moran (757 221-2187) and/or the College of William and Mary Education Internal Review Committee (EDIRC) (Phone: 757-221-2358) with any questions about this survey or the study.

Voluntary Participation
Your participation in this survey is voluntary and you may omit responses to particular questions. You may withDRA2w after providing initial consent to participate.

Confidentiality
Your responses will be kept confidential to the extent possible by the researchers and as permitted by law. This online survey will restrict the researcher's access to your identity. Though the study sponsor, the dissertation chair, and the College of William and Mary Education Institutional Review Committee (EDIRC) may review records as part of this study, your identity will not be revealed in any publication of the survey results.

Benefits
Your perspective on the implementation of multisensory reading instruction will be extremely valuable toward learning about barriers and facilitating conditions that affect implementation of this reading initiative in Jefferson County Public Schools. Your participation in this survey assists the school division in providing effective reading instruction for the school division's students with disabilities. Your timely and thorough participation in this survey is appreciated.

Consent
You have been informed regarding the purpose of this study and your voluntary participation in this survey. You have been provided an opportunity to ask questions about the survey and freely volunteer to participate. By checking the Next button you confirm that you have read the information above and consent to participate in this survey

Next

Teacher Survey of Multisensory Reading

1. During the 2011-12 school year, for what grade levels do you provide multisensory reading instruction for students with disabilities? Mark all that apply.

○ Kindergarten	○ 1st grade
○ 2nd grade	○ 3rd grade
○ 4th grade	○ 5th grade

2. During the 2011-12 school year, what is your primary contracted teaching assignment in special education at your school?

- ○ Specific Learning Disability
- ○ Emotional Disability
- ○ Mild Intellectual Disability
- ○ Other: [ ]

3. Please check the number of students for whom you have provided multisensory reading instruction during the 2011-12 school year. Mark "Other" and write the number for any number above 12.

○ 0 ○1 ○2 ○3 ○ 4 ○5 ○6 ○7 ○8 ○9 ○10 ○11 ○12

○ Other: [ ]

The questions below ask you to describe the availability and your use of multisensory reading instructional resources and materials.

4. Did the school division provide adequate multisensory reading instructional materials for your use?

All required materials provided provided	Some materials provided	Minimal materials provided	No materials
○	○	○	○

5. To what extent have you used the multisensory reading instructional materials provided by the school division in your instruction?

To a great extent	To some extent	To a minimal extent	Not at all
○	○	○	○

The following three questions pertain to your provision of multisensory reading instruction for specific students with disabilities, based upon their reading level. For each of these questions, note the number of 30 minute sessions per week each student participates in multisensory reading instruction. This would reflect your estimate of weekly sessions of multisensory, on average, for the students as described in each question. * NOTE: If your units of time (e.g. 20 minute sessions instead of 30 minute sessions) are different, please write it in the text box below.

6. For students who are 1 year behind grade level in reading as measured by the DRA2, on average how many 30 minute sessions* of multisensory reading instruction do you provide each week?

One time weekly	Two times weekly	Three times weekly	Four times weekly	Five times weekly
○	○	○	○	○

Other: [ ]

7. For students who are 1 to 2 years behind grade level in reading as measured by the DRA2, on average how many 30 minute sessions* of multisensory reading instruction do you provide each week?

One time weekly	Two times weekly	Three times weekly	Four times weekly	Five times weekly
○	○	○	○	○

Other: [ ]

8. For students who are 2 or more years behind grade level in reading as measured by the DRA2, on average how many 30 minute sessions* of multisensory reading instruction do you provide each week?

One time weekly	Two times weekly	Three times weekly	Four times weekly	Five times weekly
○	○	○	○	○

Other: [ ]

9. Please describe the extent to which the students for whom you have provided multisensory reading instruction have demonstrated measureable gains in reading achievement as measured by the DRA2 during this school year. Please mark the one statement that most closely represents your student achievement outcomes as a result of multisensory reading instruction.

○ All of the students who participated in multisensory reading instruction demonstrated measureable gains in reading achievement, as measured by the DRA2, during this school year.

○ Most students who participated in multisensory reading instruction demonstrated measureable gains in reading achievement, as measured by the DRA2, during this school year.

○ Several students who participated in multisensory reading instruction demonstrated measureable gains in reading achievement, as measured by the DRA2, during this school year.

○ Few students who participated in multisensory reading instruction demonstrated measureable gains in reading achievement, as measured by the DRA2, during this school year.

○ None of the students who participated in multisensory reading instruction demonstrated measureable gains in reading achievement, as measured by the DRA2, during this school year.

10. Please help us understand the district- wide activities that support your implementation of multisensory reading instruction. A "Support" would be an activity or condition that aids or assists your multisensory reading instruction. Please rate each statement below according to your perception of it as "Very Helpful," "Somewhat Helpful," "Minimally Helpful," "Not Helpful," or "Does Not Apply."

District-Wide Supports	Very Helpful	Somewhat Helpful	Minimally Helpful	Not Helpful	Does Not Apply
A. The 30 hour, 5 day professional development activity provided by the Institute for Multi-Sensory Education trainer					
B. Attendance at multisensory reading "share fair" activities.					
C. Other school district multisensory reading professional development opportunities					
D. Observations of multisensory reading instruction and suggestions provided by special education specialist and liaisons					
E. Consultation with the liaison who is coordinating multisensory reading instruction					
F. Provision of multisensory reading instruction resources and materials					

11. Please describe in your own words any school district- wide activities that support your implementation of multisensory reading instruction.

12. Please help us understand the conditions at your school that support your implementation of multisensory reading instruction. A support would be an activity or condition that aids or assists your multisensory reading instruction. Please rate each statement below according to your perception of it as "Very Helpful," "Somewhat Helpful," "Minimally Helpful," "Not Helpful," or "Does Not Apply."

School-Based Supports	Very Helpful	Somewhat Helpful	Minimally Helpful	Not Helpful	Does Not Apply
A. Observations of my multisensory reading instruction and supervision provided by my school administrator(s).					
B. Suggestions about my multisensory reading instruction from my school reading specialist/teacher.					
C. Meetings among my school special education colleagues that examine student reading achievement data, share multisensory reading instructional strategies, and help schedule reading interventions for students.					
D. Consultation with my school's multisensory reading "Literacy Leader."					
E. The school master schedule provides flexible times to provide multisensory reading instruction to students who need it.					

13. Please describe in your own words below any other school-based factors that support your implementation of multisensory reading instruction.

14. Help us understand school division barriers that may interfere with your implementation of multisensory reading instruction. A barrier is an obstacle that restrains, impedes, or interferes with your ability to provide multisensory reading instruction. Rate each statement below, according to your perception of it as a "Very Significant Barrier," "Significant Barrier," "Minor Barrier," "Not a Barrier," or "Does Not Apply."

School District Barriers	Very Significant Barrier	Significant Barrier	Minor Barrier	Not a Barrier	Does Not Apply
A. Special education central office support					
B. Provision of multisensory reading instruction resources and materials					
C. School district balanced literacy schedule does not permit flexibility for this specialized instruction.					
D. The opportunities for further professional development about multisensory reading instruction					

15. Please describe in your own words other school district barriers to your implementation of multisensory reading instruction.

16. Help us understand school-based barriers that may affect your implementation of multisensory reading instruction. A barrier is an obstacle that restrains, impedes, or interferes with your ability to provide multisensory reading instruction. Rate each statement below, according to your perception of it as a "Very Significant Barrier," "Significant Barrier," "Minor Barrier," "Not a Barrier," or "Does Not Apply."

School-Based Barriers	Very Significant Barrier	Significant Barrier	Minor Barrier	Not a Barrier	Does Not Apply
A. Time/flexibility in school master schedule.					
B. Time available to provide levels of multisensory reading instruction due to special education student caseload needs.					
C. Ability to learn and share with other multisensory trained teachers in my building.					
D. My confidence in my skill level to provide multisensory reading instruction.					
E. School reading teacher/specialist observation or suggestions.					
F. School administrative observation, supervision and support					

17. Describe in your own words other school-based barriers to your implementation of multisensory reading instruction as described in your professional development.

18. Please help us understand what you and other teachers feel is needed to continue implementation of multisensory reading instruction. Please rate each statement below according to your perception of the need as "Critical Need," "Important Need," "Minor Need," "Not Needed," or "I Don't Know."

Needs	Critical Need	Important Need	Minor Need	Not Needed	I Don't Know
A. More detailed curriculum materials with sample lesson plans and lesson plan templates					
B. Additional professional development opportunities					
C. Additional observation and coaching on my instruction					
D. Provision of flexibility in the school master schedule so that I can schedule this instruction					
E. Additional staffing in my school to help us address the individualized instruction needed of students					
F. Assessment instruments that will help me in diagnosing student skills and monitoring student progress					
G. Opportunities to meet regularly with my teaching colleagues to share data and ideas about multisensory reading instruction					

19. Please describe in your own words any other ideas that you have about what may be needed to continue implementation of multisensory reading instruction.

Thanks for providing input that will help us understand the status of multisensory reading instruction in our schools. The information you provide us will be used to refine implementation. You will be informed about the results of the survey.
Please press the "Done" button when you have completed the survey.

Prev Done

Appendix B

Focus Group Facilitation and Questions

Welcome and Information. This is a focus group intended to assist the school division in learning factors affecting the implementation of multisensory reading instruction for students with disabilities in our elementary schools. This focus group is a component of a formative program evaluation of multisensory reading instruction that is the topic of a dissertation by a doctoral candidate at the College of William and Mary. Your participation in this focus group is voluntary. You have the option of not responding to specific questions. Your name and school name will remain confidential, with pseudonyms or codes substituted in any transcript or summary statement that appears in the final document. We have your real name on the tent card in front of you to facilitate a smooth discussion. I ask that you choose your pseudonym and write it on the other side of the tent card in front of you so that the summary of this document ties your pseudonym to your discussion.

We expect this focus group to last no more than 90 minutes. This focus group is being audio-recorded to assist the researcher in accurately capturing your ideas. Following this research study, this recording will be destroyed. We appreciate your openness and ask that you also maintain the confidentiality of the information shared in this room in order to facilitate your and others' freedom to express your thoughts today. You have confirmed your participation by signing the informed consent document provided by Mr. Asip. Again thank you for your participation. I am Dr. Peggy Miles and I am co-facilitating this Focus Group with Mike Asip. My job to keep a focused, honest,

and open discussion of specific topics regarding multisensory reading instruction provided by elementary special education teachers.

Thanks, then let's begin!

A. Opening and warm-up:

Please tell us who you are, what your job is and tell us about an instructional success story that has occurred among your students or in your school this school year that is not connected with multisensory reading instruction.

B. Introductory question:

Please describe your understanding and your experience with multisensory reading instruction in your school.

C. Transition questions:

1. Please describe your with multisensory reading instruction at your school?
2. Tell us what you think is important about providing multisensory reading instruction?
3. Can you describe any student success stories as a result of multisensory reading instruction?

D. Key question:

What would effective implementation of multisensory reading instruction look like in our schools?

Possible Probe: How do you know how multisensory reading instruction is supposed to be implemented?

E. Key question:

Tell us about the level of consistency that you think multisensory reading instruction is being implemented by teachers in your school according to the design of the multisensory instruction.

Follow-up: What's causing this variability of implementation?

F. Key question:

Tell us what is in place in the schools and in the school district that helps sustain multisensory reading instruction.

Possible probe: Can you give us some examples of how these supports are in place in schools?

G. Key question:

Describe some of the barriers to implementing multisensory reading instruction. What prevents you from providing the instruction you may want to provide?

Possible follow-up: How do think the schools or the school district can address those barriers?

Possible follow-up: We've talked about barriers to implementing multisensory reading instruction. After listening to the discussion what do you think are the top barriers that need addressing?

H. Key question:

Talk about how we could improve multisensory reading instruction in Jefferson County?

I. Final question:

Is there anything else we should have talked about this topic but didn't?

J. Summary question:

The facilitator provides 3 minute summary of key points made during the focus group, followed by: "How well does that capture what was said here?"

Thanks to all of you for your participation!

Appendix C

Interview Questions – Special Education Central Office Administrators

One elementary specialist, one elementary liaison and the liaison coordinating the multisensory reading initiative.

1. What is your role with regard to implementation of multisensory reading instruction for elementary students with disabilities?
2. What activities have you participated in with school staff and leaders to initiate and sustain multisensory reading instruction?
3. If multisensory reading instruction would optimally be implemented in schools, what would it look like?
4. Fidelity of implementation addresses the degree to which an intervention or action is carried out according to its design. How would you gauge fidelity of implementation of multisensory reading instruction in the schools you work with in the division – weak fidelity, moderate fidelity or strong fidelity? Describe how you have come to know this.
5. Is multisensory reading instruction making a difference for kids? How do you know?
6. Describe in detail components of multisensory reading instruction that are being implemented with fidelity? Which would you like to see strengthened?
7. To what extent have schools consistently monitored the reading skills progress of students with disabilities participating in multisensory reading instruction?

8. What recommendations do you have to improve the fidelity of implementation of multisensory reading instruction for students with disabilities in the school district?

Appendix D

Interview Questions for the Staff of the

Institute for Multi-sensory Education

NAME: _____ DATE: _____

1. Please describe your role in the implementation of multisensory reading strategy instruction in Jefferson County Public Schools?
2. Please give a brief overview of the professional development you provided to the Jefferson County Public School teachers.
3. If you could imagine ideal implementation of multisensory reading instruction for students with disabilities, please describe what that would look like.
    - In the school
    - From the teacher perspective
    - From the student perspective
4. Describe your overview training with administrators, your classroom observations, and feedback sessions with teachers. What were some highlights of observations and your recommendations?
5. What supports should be in place to monitor and support fidelity of implementation of multisensory reading instruction in Jefferson County Public Schools?
6. Please describe how other school districts sustain strong fidelity of implementation of multisensory reading instruction? Please share some success stories.

7. From discussions you have had during and following the training sessions that you have provided, what are some of the barriers teachers and leaders need to address when implementing multisensory reading strategy instruction in schools?
8. How does the IMSE undertake or participate in program evaluations to determine the fidelity of implementation of multisensory reading instruction and study the student outcomes from multisensory reading instruction?
    - Are you aware of some research studies with student outcome measures as a result of IMSE multisensory reading strategies?
9. As you have come to know our school district through training sessions and contact with our special education teachers and leaders, do you have any specific recommendations for Jefferson County Public Schools to consider to grow and to sustain multisensory reading instruction?

THANK YOU!

Appendix E

Multisensory Reading Implementation School-Based Rubric

Category of Implementation	High Implementation 3	Moderate Implementation 2	Low Implementation 1
Administrative Support	Administration has full understanding of multisensory reading instruction; understands which students are appropriate for instruction; supports implementation through master scheduling and use of special education staff; uses "flooding" model 3	Administration has some understanding of multisensory reading instruction; attempts to support implementation through scheduling and use of staff, but is not able to do so to full extent necessary for maximum student progress. 2	Administration has limited to no understanding of multisensory reading instruction; does not support implementation through scheduling or use of special education staff. Teachers assigned to a grade level to serve students. 1
Teacher Knowledge	Special education staff demonstrates understanding of multisensory strategies and instruction through discussion; able to discuss concepts and teaching techniques in depth; make connections between student progress and instruction; clear understanding of focused reading instruction. 3	Special education staff demonstrates inconsistent understanding or limited understanding of multisensory strategies and instruction as demonstrated through discussion; teachers can moderate to minimal connections between student progress and instruction; some understanding of focused reading instruction. 2	Special education staff reluctant to engage in discussion or engage in discussion regarding strategies and instruction; none or limited understanding of strategies and instruction; no understanding of focused reading instruction. 1
Assessment	Teachers synthesize PALs, multisensory data, etc. to determine where to begin instruction for students grouped together for specialized instruction; teachers make adjustments to instruction on a daily basis based on student performance and assessment; maintain Record of Mastery for each student. 3	Teachers have difficulty synthesizing assessment data to determine where to begin instruction for students; difficulty grouping students with similar needs; difficulty making adjustments to instruction on a daily basis based on student performance; do not maintain the Record of Mastery for each student. 2	Teachers do not synthesize assessment data to make instructional decisions in order to provide specialized instruction for special education students. 1
Implementation	Teachers demonstrate techniques of multisensory instruction with fidelity; are strategic in their planning and implementation; use a pacing guide to help guide instruction; differentiate for individual students while maintaining group focus. 3	Teachers do not consistently demonstrate techniques of multisensory instruction with fidelity; are not consistently strategic in their planning/implementation; lack of pacing guide use results in weak planning; limited differentiation for students within the group. 2	Teachers do not implement multisensory reading strategy instruction for appropriate students. 1
Totals	12 11 10	9 8 7	6 5 4

Appendix F

Program Evaluation Standards
Joint Committee on Standards for Education Evaluations (2011)

Utility Standards

The utility standards are intended to increase the extent to which program stakeholders find evaluation processes and products valuable in meeting their needs.

- U1 Evaluator Credibility. Evaluations should be conducted by qualified people who establish and maintain credibility in the evaluation context.
- U2 Attention to Stakeholders. Evaluations should devote attention to the full range of individuals and groups invested in the program and affected by its evaluation.
- U3 Negotiated Purposes. Evaluation purposes should be identified and continually negotiated based on the needs of the stakeholders.
- U4 Explicit Values. Evaluations should clarify and specify the individual and cultural values underpinning purposes, processes, and judgments.
- U5 Relevant Information. Evaluation information should serve the identified and emergent needs of stakeholders.
- U6 Meaningful Processes and Products. Evaluations should construct activities and descriptions, and judgments in ways that encourage participants to rediscover, reinterpret, or revise their understandings and behaviors.
- U7 Timely and Appropriate Communicating and Reporting. Evaluations should attend to the continuing information needs of their multiple audiences.

- U8 Concern for Consequences and Influence. Evaluations should promote responsible and adaptive use while guarding against unintended negative consequences and misuse.

Feasibility Standards

The feasibility standards are intended to increase evaluation effectiveness and efficiency.

- F1 Project Management. Evaluations should use effective project management strategies.
- F2 Practical Procedures. Evaluation procedures should be practical and responsive to the way the program operates.
- F3 Contextual Viability. Evaluations should recognize, monitor, and balance the cultural and political interests and needs of individuals and groups.
- F4 Resource Use. Evaluations should use resources effectively and efficiently.

Propriety Standards

The propriety standards support what is proper, fair, legal, right, and just in evaluations.

- P1 Responsive and Inclusive Orientation. Evaluations should be responsive to stakeholders and their communities.
- P2 Formal Agreements. Evaluation agreements should be negotiated to make obligations explicit and take into account the needs, expectations, and cultural contexts of clients and other stakeholders.
- P3 Human Rights and Respect. Evaluations should be designed and conducted to protect human and legal rights and maintain the dignity of participants and other stakeholders.

- P4 Clarity and Fairness. Evaluations should be understandable and fair in addressing stakeholder needs and purposes.
- P5 Transparency and Disclosure. Evaluations should provide complete descriptions of findings, limitations, and conclusions to all stakeholders, unless doing so would violate legal and propriety obligations.
- P6 Conflicts of Interests. Evaluations should openly and honestly identify and address real or perceived conflicts of interests that may compromise the evaluation.
- P7 Fiscal Responsibility. Evaluations should account for all expended resources and comply with sound fiscal procedures and processes.

Accuracy Standards

The accuracy standards are intended to increase the dependability and truthfulness of evaluation representations, propositions, and findings, especially those that support interpretations and judgments about quality.

- A1 Justified Conclusions and Decisions. Evaluation conclusions and decisions should be explicitly justified in the cultures and contexts where they have consequences.
- A2 Valid Information. Evaluation information should serve the intended purposes and support valid interpretations.
- A3 Reliable Information. Evaluation procedures should yield sufficiently dependable and consistent information for intended uses.

- A4 Explicit Program and Context Descriptions. Evaluations should document programs and their contexts with appropriate detail and scope for the evaluation purposes.
- A5 Information Management. Evaluations should employ systematic information collection, review, verification, and storage methods.
- A6 Sound Designs and Analyses. Evaluations should employ technically adequate designs and analyses that are appropriate for the evaluation purposes.
- A7 Explicit Evaluation Reasoning. Evaluation reasoning leading from information and analyses to findings, interpretations, conclusions, and judgments should be clearly and completely documented.
- A8 Communication and Reporting. Evaluation communications should have adequate scope and guard against misconceptions, biases, distortions, and errors.

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*Jefferson County is a fictitious name for the school district to maintain the confidentiality in this program evaluation.

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