TEACHERS' PERCEPTIONS OF KNOWLEDGE AND PROFESSIONAL
DEVELOPMENT REGARDING RECOGNIZING CHARACTERISTICS OF
DYSLEXIA IN STUDENTS IN THE GENERAL EDUCATION CLASSROOM

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A Dissertation
Presented to
The Faculty of the Leadership and Counseling Department
Houston Baptist University

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In Partial Fulfillment
of the Requirements for the Degree of
Doctor of Education

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by
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May 2020

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RECOGNIZING CHARACTERISTICS OF DYSLEXIA IN STUDENTS IN THE
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by
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This dissertation follows the format and style of the *Publication Manual of the American Psychological Association, Sixth Edition* except where superseded by directions from the Director of the Doctor of Education in Executive Educational Leadership Program at Houston Baptist University.

DEDICATION

For God gave us a spirit not of fear but of power and love and self-control.

2 Timothy 1:7

I AM HERE! Although, few words "I AM HERE" represents the power and self-control, God graced upon me to seek and obtain a doctorate degree. A milestone unachievable without the love and support of my family. This dissertation is dedicated to my parents Marilyn and Bill Childers and my son Cade Lipps. Mom and Dad, you have always been my biggest supporters all the while showing me what it means to hang in there despite the odds. Thank you for instilling in me the confidence to know I can do anything I put my mind to. Cade, you are my reason. It is because of you I strive for excellence and choose never to give up. A sister's love is immeasurable, and the continuous encouragement of my sister Maria Bynum is something I am forever grateful. My family represents my core, reflecting my drive and passion for education.

ABSTRACT

Childers, Malissa, L., *Teachers' perceptions of knowledge and professional development regarding recognizing characteristics of dyslexia in students in the general education classroom.* Doctor of Education (Educational Leadership) May 9, 2020, Houston Baptist University, Houston, Texas.

Purpose

The purpose of this phenomenological study was to describe the perceptions of English-Language Arts teachers in grades six through eight regarding their preparation and knowledge on recognizing students with characteristics of dyslexia in the general education classroom. The participants for this study were purposefully selected from the populations of English-Language Arts teachers in grades six through eight in a large suburban district in Southeast Texas on two separate campuses.

Methodology

In this descriptive study, the researcher used the qualitative phenomenological methodology to explore and more clearly describe the fundamental perceptions of teachers regarding knowledge and professional development related to recognizing characteristics of dyslexia in students. As participants shared their feelings by describing what they perceive and sense through their self-awareness and experiences, the researcher gained understanding and knowledge. A total of 30 participants addressed most questions on the survey and returned it to the researcher. All six of the focus group participants reported to the researcher regarding questions provided.

Findings

The findings were based on data collected from the electronic survey and transcripts from individual interviews. Each of the 30 participants completed the modified Dyslexia Knowledge Survey. At the end of the survey, each teacher had an opportunity to volunteer to participate in one of the six interviews that were conducted over the course of this study. The researcher analyzed data (reported in Chapter IV) from 30 participants who completed the online survey and 6 interview participants.

Three themes emerged for each research question: reading, training, and support.

Conclusions

The results of this study can be used to inform teacher professional development workshop topics and the timing of the sessions. Personnel and interventions needed to support teachers working with dyslexic students is another use for the results of this study. Teachers, parents, administrators, and other school leaders can benefit from reading and applying the results from this study.

KEY WORDS: Dyslexia, Phonology and Phonological Awareness, Simultaneous, Multisensory (VAKT), Phonemic awareness, Early identification, Early intervention, Lifelong Learning Disability, Orton- Gillingham approach, Inclusive classroom, Direct Instructions, Accommodations

To the "Fab Five," Iboro Eno, Tomayia Colvin, Evans Akpo, and my grad school person, Maria Starling, I have loved going through this program with all of you, as our memories will continue beyond this experience. The struggles were made better by your voices of encouragement and all the laughs we shared. Anna Taylor and Heather Gower, I am so thankful for your friendship and for you calling/texting and calling/texting again when I didn't respond. It's knowing others care that has made all the difference.

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Pillar Three: Embrace the Challenge of Christian Graduate Education

The premise of Pillar Three: Embrace the Challenge of Christian Graduate Education is that Christian colleges do not offer enough doctoral degrees in various fields. When Christian schools begin emphasizing the integration of faith and learning, in addition to offering doctoral programs, we begin to have more Christian scholarly discussions led by Christian scholars (Houston Baptist University, n.d.). To embrace the Christian graduate, Houston Baptist University not only proposed to complete feasibility studies in several advanced professional training areas (Houston Baptist University, n.d.), but followed through by creating a Doctor of Education (EdD) in Executive Educational Leadership program in 2016.

As a doctoral student in Cohort II, researching how to help teachers receive more professional development and education in recognizing students with characteristics of dyslexia is a key example of how graduates of Houston Baptist University will be able to take their training and leadership into the next generation of teachers and students. School districts including administrators, teachers and parents will need much more professional development and education regarding students with characteristics of dyslexia. Houston Baptist University is training their doctoral of education candidates to be the mentors and leaders of scholarly discussions which will shape the future of academics in public and private schools.

CHAPTER I

Introduction

In the United States over 40 million adults possess characteristics of dyslexia;

however, only 2 million were identified (Austin Learning Solutions, 2015). The

International Dyslexia Association (IDA, 2002) defines dyslexia as a language-based

learning disability that includes poor word reading, word decoding, oral reading fluency

and spelling. Dyslexia is an unexpected reading difficulty in an otherwise intelligent,

motivated student who received reasonable reading instruction necessary to achieve

reading fluency (Ferrer, Shaywitz, Holahan, Marchione, & Shaywitz, 2010). Dyslexia

does not demonstrate a lack of intelligence and often runs in families (Pennington &

Lefly, 2001). One of the most common reading disabilities, dyslexia (Shaywitz, Fletcher,

Shaywitz, 1995) affects all backgrounds and intellectual levels (IDA, 2017), lasts

throughout the lifecycle, and equally affects males and females (Thorwarth, 2014).

According to the National Institute of Neurological Disorders and Stroke (n.d.) and

Austin Learning Solutions (2015), dyslexia affects a wide range of people and produces

different symptoms on a spectrum of severity. Individuals with dyslexia may have

difficulty with planning and prioritizing, keeping time, organizing, and concentrating

(Austin Learning Solutions, 2015).

Approximately 1 in 10 people have dyslexia and 20% of school-age children

exhibit characteristics of dyslexia (Austin Learning Solutions, 2015). The inability to

read is not a cause of dyslexia, but an effect (Peer, 2001). The brains of people with

dyslexia function differently than those without the disability (Galaburda, 2005); specific

characteristics of the dyslexic brain have included poor phonological skills, sequencing

issues, difficulties in organization (Juneja, 2018). Children with dyslexia may have difficulties with short-term and long-term disabilities as well as difficulties in coordination which may be seen in fine motor skills such as using scissors or handwriting (Juneja, 2018).

Dyslexia is identified in some people at an early age, but others are not identified until much later (IDA, 2008). Early detection and diagnosis is critical for children with dyslexia because remediation is much easier the earlier interventions are applied (Hall & Moats, 1999). The learning gap for struggling readers widens, compared to non-struggling readers, each year they lack interventions or are taught by teachers who lack training in this area (Damer, 2010). As a result of the varying degrees of severity of dyslexia, student prognosis may be mixed; however, students identified early and receive appropriate interventions can learn successfully (Austin Learning Solutions, 2015; National Institute of Neurological Disorders and Stroke, n.d.). Once a lack of knowledge of the alphabet, phonemic awareness, and vocabulary is identified, reading intervention can begin (Arrow & McLachlan, 2011). Research demonstrated highly knowledgeable and skilled teachers are imperative to resolving or diminishing reading difficulties (IDA, 2010). Although there is a need to understand and educate students with dyslexia, studies indicated educators lack the essential knowledge to teach struggling readers, including those with dyslexia (Washburn, Binks-Cantrell, & Joshi, 2013). It is necessary for teachers to be aware of the signs and characteristics of dyslexia and receive training in order to help students with dyslexia become successful readers (Thorwarth, 2014). Numerous studies reported incoming teachers are not prepared to teach reading (Washburn, Joshi, & Binks-Cantrell, 2011b). For example, the American Council on

Education (2002) reported teacher education programs do not provide adequate training to prepare educators to provide effective reading instruction.

Background of the Study

According to Thorwarth (2014), "teachers need to have explicit training in assessing and instructing the areas of phonemic awareness, phonics, fluency, comprehension, and vocabulary (p. 53). Along with inadequate training, teachers possess many misconceptions regarding dyslexia (Washburn, Joshi, and Binks-Cantrell, 2011a and 2011b). According to Carvalhais and Silva (2010), these misconceptions about dyslexia can be rectified with proper education for those entering the teaching field and ongoing support, professional development, and training for current teachers. Washburn et al. (2011b) found while teachers understood students with dyslexia would experience difficulties with decoding and spelling, an overwhelming majority still thought dyslexia was a visual perception deficit, and colored overlays and tinted lenses would help students with dyslexia. Many teachers also have the misconception word reversal is the main characteristic of dyslexia (Washburn et al., 2011b). However, if teachers' attitudes toward dyslexia and students with dyslexia are positive, teachers feel the label of dyslexia can be helpful to teachers and students. Teachers with this mindset make additional efforts to increase reading competencies (Gwernan-Jones & Burden, 2010). Based on their misconceptions about dyslexia, teachers feel inadequate to work with students with dyslexia and would like more education to provide appropriate teaching methods to students with dyslexia (Wadlington & Wadlington, 2005). Many teachers would participate in workshops and seminars to become more educated and prepared to teach struggling readers (Carvalhais & Silva, 2010). Participation in a dyslexia simulation

would also help inform teachers of the difficulties students with dyslexia experience in the classroom. Teachers need to be empathic in understanding the daily struggles, including the frustrations and learning difficulties, of a student with dyslexia (Wadlington, Elliot, & Kirylo, 2008).

Researched-based assessments and interventions to help students read accurately and fluently are not being used to help readers who struggle the most (Shaywitz & Shaywitz, 2004). A student with dyslexia can receive specialized teaching methods and academic accommodations to help them succeed (IDA, 2017). According to the International Dyslexia Association (2010) professional standards written for teachers who work with students with dyslexia include the knowledge of specific reading-related concepts and the knowledge to recognize characteristics of dyslexia in students. Teachers want to help struggling readers learn to read (Thorwarth, 2014).

Statement of the Problem

This study addressed teachers' lack a basic understanding of dyslexia and their inability to recognize students with characteristics of dyslexia in the general education classrooms (Driver Youth Trust 2014; Dyslexia Action, 2012). The risk of delaying evaluation and treatment for a child with dyslexia can evolve into a significant emotional and social problem (Blackley, 2014). Students start to feel discouraged and communicate a negative dialogue concerning their ability to learn. These students begin to feel frustrated with their apparent lack of ability to read (Thorwarth, 2014.) Blackley (2014) tells us children with dyslexia will need specialized and explicit instruction to become successful readers. Extra practice or a tutoring will not help students with dyslexia catch up; they need to be taught reading using the Orton- Gillingham approach, which is a

specific type of teaching method designed for the learning patterns of the dyslexic brain (Blackley, 2014). Students with dyslexia and higher intellectual ability are often able to compensate for their disability by utilizing memorization (i.e., content, study notes, sight words) (Blackley, 2014). The rigor of the reading and note taking increases for bright students as they enter middle and high school and the memorization technique will fail. Suddenly they are not able to keep up with the learning expectations (Blackley, 2014). Findings indicate educated and experienced teachers may still lack the essential knowledge to effectively assess and remediate struggling readers (Washburn et al., 2011b).

Statement of the Purpose and Significance

The purpose of this phenomenological study was to describe the perceptions of English-Language Arts teachers in grades six through eight regarding their preparation and knowledge on recognizing students with characteristics of dyslexia in the general education classroom. Students with dyslexia struggle with phonemic awareness, poor word decoding, and problems with verbal memory – they know the word but are unable to retrieve it (Brady & Moats, 1997). Students with dyslexia require teacher directed, explicit, systematic instruction until they are reading without effort. Many teachers are not adequately trained to teach reading and spelling to young children, and more professional development and better teacher preparation is necessary to reduce the number of children who are not meeting reading expectations and standards (Brady & Moats, 1997). Early intervention is critical because if these reading difficulties go unaddressed, students will be affected throughout their school years and into adulthood (Bos, Mather, Narr, & Babur, 1999.) Teachers must be knowledgeable and capable of

providing the most explicit and effective methods for providing instruction to at-risk students. Teachers need the opportunity to receive collaborative professional development to meet the needs of students with reading difficulties (Bos et al., 1999.) Unfortunately, teachers do not receive the training necessary to provide appropriate instruction and support for struggling readers and receive even less training in how to identify and effectively teach children with dyslexia. Moreover, teachers receive little to no dyslexia training; reports show teachers want more dyslexia training in order to be prepared to recognize and teach students with dyslexia (Driver Youth Trust, 2014).

Research Questions

Consistent with the purpose of this study, the research questions are as follows:

1. What are the perceptions of English-language arts teachers in grades 6-8 regarding their current knowledge on recognizing students with characteristics of dyslexia in the general education classroom?

2. What are perceptions of English-language arts teachers in grades 6-8 regarding professional development on recognizing students with characteristics of dyslexia in the general education classroom?

3. What are perceptions of English-language arts teachers in grades 6-8 regarding recommendations for improving professional development on recognizing students with characteristics of dyslexia in the general education classroom?

Definition of Terms

Accommodations.

An "accommodation" is a change of environment, curriculum format, or equipment so that students with a disability have the opportunity to learn the content and

complete assigned tasks (Disabilities, Opportunities, Internetworking, and Technology, 2017). Fisher & Frey (2016) explain accommodations change how the students with disabilities learn the material. Accommodations help students learn the same material and meet the same expectations as their peers (Fisher & Frey, 2016). Since accommodations do not change what is being taught, teachers should be able to apply the same grading scale for all students (Disabilities, Opportunities, Internetworking, and Technology, 2017).

Dyslexia.

Dyslexia can be defined as a specific learning disability which is neurological in origin. Characteristics include challenges with fluent word recognition, decoding difficulties, and poor spelling (IDA, 2002). These challenges result from an unexpected phonological deficit in individuals who otherwise have reasonable intelligence and effective reading instruction (Ferrer et al., 2010). Learning to read, write, and spell can be difficult as a result of these challenges (Screening and Treatment for Dyslexia, 2019).

Differentiated instruction.

Best practices are utilized in addressing ways which students vary as learners (Tomlinson, 2005).

Direct instruction.

All concepts are taught with continuous student-teacher interaction; a model for an instruction that emphasizes well developed and carefully planned lessons around small increments and defined teaching tasks (National Institute of Child Health and Human Development [NICHD], 2000).

Early identification.

For this study, early identification is during early childhood before the child begins struggling with reading and writing. Early identification is important because research has found intervention is most effective during early childhood (Foorman & Torgeson, 2001).

Early intervention.

Intervention used to overcome diagnosed disabilities, such as dyslexia, received before the third grade is considered early. Research has shown early intervention provides significant positive effects on students' educational development (Abreu-Ellis, Ellis, & Hayes, 2009). This intervention is concentrated on specific phonemic issues and is taught by proficiently trained teachers (Shaywitz, Morris, & Shaywitz, 2008).

Inclusive classroom.

An inclusive classroom is a general education classroom where students with disabilities have an opportunity to fully and equally participate and interact with non-disabled peers in academic activities and curriculum. (Katz, 2012).

Lifelong learning disability.

Learning disabilities are neurologically based processing problems. These processing problems can interfere with learning skills such as reading, writing, and math. In addition, organization, time planning, abstract reasoning, long or short-term memory and attention can also be difficult for individuals with learning disabilities. People with learning disabilities have average or above average intelligence and there is often a discrepancy between the person's potential and actual achievement. A learning disability is a lifelong challenge that cannot be cured; however, people who receive proper support

and intervention, achieve success in school, at work, in relationships, and in the community (Learning Disabilities Association of America, 2013).

Orton- Gillingham approach.

The Orton-Gillingham approach is a language based, multi-sensory technique that teaches the basics of word formation. Students are taught phonemes and morphemes, such as prefixes, suffixes, and roots as well as common spelling rules. Multi-sensory education utilizes the three learning styles, which are visual, auditory, and kinesthetic (Institute for Multi-Sensory Education, 2016).

Phonemic awareness.

The ability to notice, think about, and use individual sounds in spoken words (Armbruster, Lehr, & Osborn, 2001); the ability to identify, isolate, manipulate and blend sounds and sounds in words (Literary Resources, Inc., 2013)

Phonology and phonological awareness.

The study of sounds and the way they work in their environment is called phonology. A phoneme is the smallest unit of distinct sound. Phonological awareness is understanding the internal linguistic structure of words (IDA, 2000).

Simultaneous, multisensory (VAKT).

The brain has four learning pathways: visual, auditory, kinesthetic, and tactile. These pathways are accessed at the same time to improve memory and learning (NICHD, 2000).

Conceptual Framework

The conceptual framework for this research study was based on the philosophy of Samuel Orton and Anna Gillingham which applies direct instruction to teach systematic,

explicit, multisensory structured language as an effective intervention program for teaching phonics to struggling readers (IDA, 2000). The Orton-Gillingham approach provides multisensory lessons that include using visual, auditory, and kinesthetic brain pathways to teach reading and spelling. (IDA, 2000). According to the International Dyslexia Association (2000), the Orton-Gillingham approach teaches: (a) a well-planned, logical sequence; (b) incremental because each lesson builds upon the previous lesson; (c) cumulative by including constant and consistent review of previously taught concepts; (d) individualized to meet the individual needs of each student; (e) based on the simplification of teaching letters and letter combinations known as phonograms; and (f) provides explicit instruction by providing students precisely what they need in a clear and straight forward method. Struggling readers require instruction that is systematic, explicit, and connected to students' current knowledge and experiences (Iris Center, 2016).

Other conceptual frameworks discussed include phonological processing deficits and non-phonological deficits, such as visual processing deficits, auditory processing issues, and working memory deficits. Adults and children had difficulties processing the phonological level of language (Birch & Chase, 2004). Individuals with dyslexia demonstrate reduced phonological awareness and are slower and less accurate than typical readers at phonological coding (Birch & Chase, 2004.) The prevalence of the phonological processing deficit in dyslexia, which led a number of researchers to conclude it is the primary deficit, is considered the defining characteristic of dyslexia (Shaywitz, 1996; Snowling, 1998; Stanovich & Siegel, 1994).

The association of dyslexia and visual processing problems, including visual information processing speed and visual persistence, has been considered and deliberated by many researchers (Boden & Brodeur, 1999; Stein, 2001). People with dyslexia may have a visual processing deficit that can cause not only a delay of processing fast incoming visual information, but can affect reading fluency (Sigmundsson, 2005). However, studies associated with dyslexia and visual processing are debatable and have not been successfully replicated (Skottun, 2000).

Researchers also studied auditory processing issues and the possible link to dyslexia (Lallier, Donnadieu, & Valdois, 2012). According to some theorists, children with dyslexia struggle to distinguish sounds audiologically (Schulte-Koerne, Deimel, Bartling, & Remschmidt, 1998). Yalçinkaya and Keith (2008) discuss the common indicators of auditory processing disorder may include poor listening skills, being easily distracted, inattentiveness, inability to learn new words or to sound out words, and difficulty following auditory instructions. The connection between auditory processing deficits and dyslexia is as controversial as the visual processing deficits and dyslexia (Georgiou, Papadopoulos, Zarouna, & Parrila, 2012).

According to Baddeley (1986), working memory deficits are also linked with dyslexia. Working memory temporarily stores and manipulates information to complete multi-step cognitive tasks, such as reading. One component of working memory is the phonological loop, which temporarily stores and processes verbal and auditory information (Schuchardt, Maehler, & Hasselhorn, 2008). Students with dyslexia show deficits in the phonological loop of working memory (Schuchardt et al., 2008). Berninger and Richards (2010) state some theorists proposed the root of dyslexia is both biological

and environmental. Some researchers theorize dyslexia is an agglomerate of many associated disorders that are both phonologically and non-phonologically based as opposed to being a primarily phonological based disorder (Jednorog, Gawron, Marchewka, Heim, & Grebowska, 2013). Regardless of whether the origin of the disorder is from phonological deficits, visual processing deficits, auditory processing issues or working memory deficiencies, the effects can lead to poor reading skills (Tanaka et al., 2011) and lifelong issues (McNulty, 2003).

Limitations

Limitations in research are matters and occurrences that arise in the study, which are out of the researcher's control (Simon & Goes, 2015). The limitations of this study included the following:

1. The survey used for self-reporting may not have conclusively determined the perceptions of English-Language Arts teachers' in grades six through eight regarding their knowledge of dyslexia.

2. This study could be limited by the possibility for participants to reply with socially acceptable answers rather than forthright responses (Stoeber, 2001). Teachers may have felt vulnerable during interviews; stating their true beliefs about dyslexia and may have responded to perceived norms of the researcher.

3. Due to the nature of the study with interviews, research participants were not anonymous.

Delimitations

Delimitations of a study are those characteristics that arise from the limitations in the scope of the study (boundaries defined by the researcher) by conscious exclusionary

and inclusionary decisions made during the development of the study (Simon & Goes, 2015). Delimitations of this study included the following:

1. The participants in this study were from a selected school campus.

2. The survey used in this study was a self-report measure, and no observable practices were examined.

3. The sample of English-Language Arts sixth through eighth grade teachers may not have been representative of the general population of teachers at the selected campus.

Assumptions

Three general assumptions of this study were:

1. The survey used in this study was valid for the purpose intended.

2. The participants understood the survey and responded objectively and honestly.

3. Interpretation of the data collected reflected what participants intended.

Organization of the Study

This study was organized into five chapters. Chapter I included the introduction, background of the study, statement of the problem, statement of the purpose and significance, research questions, the definition of terms, theoretical framework, limitations, delimitations, assumptions, and organization of the study. In Chapter II, the researcher provided a review of the literature including (a) introduction; (b) characteristics and varying degrees of dyslexia; (c) adolescent dyslexia; (d) dyslexia in the state of Texas; (e) relationship of phoenemic awareness to dyslexia; (f) dyslexia intervention; (g) common misconceptions; (h) undiagnosed dyslexia; (i) insufficient services and resources; (j) teacher knowledge about dyslexia; (k) teachers' pre-service

and in-service training; (l) summary. In Chapter III, the researcher described the

methodology used in this study, which included research design, participants, context and

setting, instrumentation, data collection, and data analysis. In Chapter IV, the researcher

provided the findings of the study. In Chapter V, the researcher provided discussions,

implications, recommendations, and conclusions.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The purpose of this phenomenological study was to explore the perceptions of English-Language Arts general education teachers in grades six through eight regarding their preparation and knowledge of dyslexia on recognizing students with characteristics of dyslexia from two junior high schools located in a large suburban school district in southeast Texas. Participant selection occurred through purposive sampling. Data was collected through survey responses and individual, in-depth interviews. Using these in-depth interviews, an exploration of how the perceptions of English-Language Arts general education teachers in grades six through eight, regarding preparation and knowledge of dyslexia relating to recognizing students with characteristics of dyslexia, may contribute to better general education teacher training in recognizing and educating students with dyslexia.

The literature review contained information from general education experts, dyslexia experts**,** special education, and education scholars from peer-reviewed journals**.** Topics such as an overview of dyslexia, dyslexia in Texas, and teachers' preparation for teaching in the inclusive classroom was also discussed in this literature review.

Documentation

The literature was compiled using ERIC, EBSCOhost, ProQuest, Questia, Wilsonweb, Galegroup, and Sage Online Journals based at Houston Baptist University. Journal articles and research studies were searched extensively. Searches were

conducted using terms relevant to the topic of teacher knowledge and professional

development relating to dyslexia, including *dyslexia, reading disabilities*, and *learning

disabilities*. These terms were combined with limiting words such as *special educators,

general educators, teacher knowledge, teacher perception, teacher beliefs, professional

development, and pre-service*.

Research Topics Describing the Study

Dyslexia

Dyslexia is one of a variety of specific learning disabilities, as defined by the

Individuals with Disabilities Education Improvement Act (IDEA, 2004):

> Specific learning disability means a disorder in one or more of the basic
>
> psychological processes involved in understanding or in using language, spoken
>
> or written that may manifest itself in the imperfect ability to listen, think, speak,
>
> read, write, spell, or to do mathematical calculations, including conditions such as
>
> perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and
>
> developmental aphasia.

Dyslexia is included in the much broader scope of learning disabilities, as defined by

IDEA, due to specific cognitive deficits (Lyon, Shaywitz, & Shaywitz, 2003).

Current literature focuses on defining underlying causes, characteristics, and

secondary consequences of dyslexia. Dyslexia is defined by The International Dyslexia

Association in the *IDA Dyslexia Handbook: What Every Family Should Know* (IDA,

2019) as follows:

> Dyslexia is a specific learning disability that is neurological in origin. It is
>
> characterized by difficulties with accurate and fluent word recognition and by

poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language and is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede the growth of vocabulary and background knowledge (p. 2).

The characteristics of dyslexia as listed in the *IDA Dyslexia Handbook* (2019) are as follows:

Common characteristics of dyslexia

Most people have one or two of these characteristics. That does not mean everyone has dyslexia. A person with dyslexia usually has several of these characteristics that persist over time and interfere with his or her learning.

Oral language

- Late learning to talk

- Difficulty pronouncing words

- Difficulty acquiring vocabulary or using age appropriate grammar

- Difficulty following directions

- Confusion with before/after, right/left, and so on

- Difficulty learning the alphabet, nursery rhymes, or songs

- Difficulty understanding concepts and relationships

Difficulty with word retrieval or naming problems

Reading

- Difficulty learning to read

- Difficulty identifying or generating rhyming words, or counting syllables in words (phonological awareness)

- Difficulty with hearing and manipulating sounds in words (phonemic awareness)

- Difficulty distinguishing different sounds in words (phonological processing)

- Difficulty in learning the sounds of letters (phonics)

- Difficulty remembering names and shapes of letters, or naming letters rapidly

- Transposing the order of letters when reading or spelling

- Misreading or omitting common short words

- "Stumbles" through longer words

- Poor reading comprehension during oral or silent reading, often because words are not accurately read

- Slow, laborious oral reading

Written Language

- Difficulty putting ideas on paper

- Many spelling mistakes

- May do well on weekly spelling tests, but may have spelling mistakes in daily work

- Difficulty proofreading

Other common symptoms that occur with dyslexia

- Difficulty naming colors, objects, and letters rapidly, in a sequence (RAN: Rapid Automatized Naming)

- Weak memory for lists, directions, or facts

- Needs to see or hear concepts many times to learn them

- Distracted by visual or auditory stimuli

- Downward trend in achievement test scores or school performance

- Inconsistent schoolwork

- Teacher says, "If only she would try harder," or "He's lazy."

- Relatives may have similar problems (pp. 3-4)

On December 10, 2015, the *Every Student Succeeds Act (ESSA)* was signed by President Barak Obama to replace the No Child Left Behind Act (NCLB) (IDA, 2016). ESSA incorporates important provisions to help ensure children with disabilities (e.g., dyslexia) will be included in educational opportunity. According to the IDA (2016), these provisions include:

Focus on improving literacy instruction

- Keep students with learning and attention issues on track to receive a regular high school diploma

- Require annual assessments

- Provide for transparent public reporting on key metrics

- Require school districts to implement evidence-based interventions

- Encourage innovation in education

The ESSA also provides an opportunity to improve educational opportunities and outcomes for children with learning and attention issues (IDA, 2016). ESSA includes two

new initiatives, Literacy Education for All Results for the Nation (LEARN) and the Comprehensive Literacy Center, that will allow teachers to grow in their expertise in supporting children who struggle with reading (e.g., students with dyslexia). LEARN will support literacy learning from early childhood through high school graduation (IDA, 2016). Districts will have funds to provide teachers with high quality professional development to support struggling readers. The Comprehensive Literacy Center focuses on identifying, developing and delivering evidenced based assessment tools and instruction strategies to better meet the needs of students who may struggle with reading, writing, language processing, comprehension or executive functioning due to a disability such as dyslexia (IDA, 2016).

Dyslexia is a common reading disability, affecting approximately one in five or 15-20% of our current population and persists throughout a person's life (Gwernan-Jones & Burden, 2010; IDA, 2012; Ness & Southall, 2010). However, researchers also contend the number of people affected might actually comprise 20-30% of the population (Shaywitz, 2003). Dyslexia is neurobiological due to the interruption in the neural systems of the brain which process language resulting in a phonological deficit. The phonological deficit effects the student's ability to recognize and compare the different sounds in words, to blend sounds to create words, and to add, delete, and count the sounds in words, which is needed to decode words accurately and fluently (Shaywitz, 2003). Word-level reading deficiencies limit decoding (pronouncing printed words) and encoding (spelling words) (Vellutino & Fletcher, 2005). Spelling and writing are also difficult skills for students with dyslexia to master (Wadlington & Wadlington, 2005). A primary characteristic of dyslexia is difficulty with accurate and fluent word

recognition (IDA, 2002). More importantly, a weakness in phonological awareness, has an impact on accurate decoding and fluency which then negatively affects comprehension (Shaywitz, 2003; Uhry & Clark, 2004). Research has consistently shown fluency to be a firm predictor of reading comprehension (Adams, 1990; Hudson, Torgesen, Lane, Turner, 2010; Kim, Wagner, Lopez, 2012). However, higher order thinking skills are often intact for a person with dyslexia; therefore, once decoding skills improved, reading comprehension improved as well (Shaywitz, 2003).

Spelling and writing are also difficult skills for students with dyslexia because spelling greatly reinforces reading (James & Engelhardt, 2012; Wadlington & Wadlington (2005). The connection between reading and spelling led to the practice of teaching children to read and learn to spell words simultaneously (Carreker, 2011; Shaywitz, 2003). To decode text, a reader must translate printed symbols from the page to the speech sound produced by each of the symbols. Spelling is when spoken words translate into printed symbols. According to Carreker (2011), each of these skills requires phonology and orthography awareness. Orthography refers to how spoken words are represented in written language (Carreker, 2011) and the spelling patterns of words (Hook, 2006). Spelling is more challenging than reading because the speller must depend on their knowledge of the orthographic patterns and apply them to spell the word correctly, whereas reading relies on the recognition of patterns in print (Hook, 2006). "Knowing about phonemes, syllables, morphemes, and the spelling system enables children to read words accurately and quickly" (Moats, 2010, p. 15). Accurate and automatic decoding encourages reading fluency and eventually reading comprehension (Carreker, 2011).

Adolescent Dyslexia

It is often assumed adolescent readers have developed sufficient decoding skills and any reading difficulties are associated to comprehension (IDA, 2012). However, struggling readers with dyslexia may not have established the skills to identify and decode unfamiliar words. Older students with unidentified and untreated dyslexia have not had the benefit of years of reading and exposure to various types of complex text (IDA, 2012). This disadvantage may also affect other areas of reading such as vocabulary, background knowledge and comprehension skills. Their spelling and writing skills might be affected, making it difficult to accurately express their knowledge and ideas (IDA, 2012).

Dyslexia is a condition which may negatively affect the student's academic achievements and psychosocial development (Battistutta, Commissaire, & Steffgen, 2018). The lack of motivation and effort to learn caused by low competency beliefs is demonstrated when students choose not to complete or perform poorly on academic tasks (Artino, 2012).

Research has found students with dyslexia encounter reading difficulties which continue through adolescence and adulthood (Nalavany, Carawan, & Brown, 2011; Stampoltzis & Polychronopoulou, 2009). Students with dyslexia drop out of high school more often compared to students who do not have dyslexia and are less likely to graduate from higher education programs (Skinner, 2007). Many students with learning disabilities manage their learning difficulties by cultivating positive coping strategies such as disclosing their disability; seeking support from teachers, parents, and peers; and compensating for their disabilities though learning strategies and accommodations.

However, many students avoid disclosing their learning disabilities, avoid the use of accommodations and are unwilling to receive individual help which are negative coping strategies (Givon & Court, 2010).

According to the International Dyslexia Association (2012), it is often believed that after 4th grade, a student who cannot read should be assisted with accommodations and technology aides rather than receive direct reading instruction. However, Alliance for Excellent Education (2006) reports considerable evidence demonstrating intensive, high quality literacy instruction can help struggling readers build the necessary skills to succeed in high school and beyond. An evaluation should be given to an older student with dyslexia so that he or she can receive direct instruction to address identified reading and writing deficits. A student who cannot decode or spell efficiently and accurately will need proficient instruction in these areas to progress to more advanced levels of reading and writing (IDA, n.d.). Older students identified with dyslexia will benefit from explicit and intensive interventions. For example, older students who struggle with reading at the word level benefit from instruction in word study (Edmonds et al., 2009). A report completed by Boardman et al. (2008) indicates the following are key recommendations for teaching word study to older students:

- to identify and break words into syllable types

- when and how to read multisyllabic words by blending the parts together

- to recognize irregular words that do not follow predictable patterns

- the meanings of common prefixes, suffixes, inflectional endings, and roots.

- instruction should include ways in which words relate to each other (for example, trans: transfer, translate, transform, transition).

- how to break words into word parts and to combine word parts to create words based on their roots, bases, or other features

- how and when to use structural analysis to decode unknown words

In addition to direct instruction, the following considerations may assist in school success:

- Subject area tutors

- Accommodations, such as extended time; oral exams; and modification of assignments

- Reduced course load

- Major course of study in areas of individual strength

- Small classes

- Technology aides such as text readers, smart pens, and spelling/grammar tools remedial instruction (Texas Education Agency [TEA], 2018).

TEA (2018) states a student should remain in dyslexia intervention until they meet the exit criteria established by the school district according to the individual needs of the student and that comply with Section 504 and IDEA regulations. The student may require continuing accommodations (TEA, 2018). Student progress should be routinely monitored. Section 504 eligibility is not determined by the need for accommodations; therefore, a student may remain in Section 504 even if accommodations are not needed (TEA, 2018). If a student no longer receives dyslexia intervention, supports, or services through Section 504, supports and services may be re-established at a later date. These support and service decisions are based on individual student needs and should be supported by data (TEA, 2018).

The time of identification impacts how students perceive or accept their learning disability (Davenport, 1991). For example, "early-diagnosed adolescents with dyslexia hold higher self-perceptions regarding their academic and more general abilities than late-diagnosed adolescents with dyslexia" (Battistutta, et al., 2018, p. 175). Students who are identified later have less acceptance or understanding of dyslexia which leads to perceptions of lower academic abilities and loss of motivation. These lower self-perceptions also apply to general abilities and expectations. Early-diagnosed students had more positive self-perceptions and were more accepting of their learning disability, which may be the result of having a better understanding of dyslexia and being more willing to discuss their disability and difficulties with others. This might be due to early-diagnosed students having more time to understand and accept being identified with dyslexia before reaching adolescence (Ingesson, 2007).

It is important for teachers to help students form positive self-perceptions in relation to their academic abilities. To help students form positive competency beliefs that align with their actual abilities, Klassen and Lynch (2007) suggest intervention teachers provide honest and explicit feedback while students identify their strengths and weaknesses. Motivation and engagement make reading enjoyable, increases reading strategy use, and boosts comprehension (Guthrie & Wigfield, 2000). Those who enjoy reading, read more, thus improve reading outcomes. Adolescent struggling readers often lack motivation to read (Morgan & Fuchs, 2007). This lack of motivation limits their ability to develop effective reading strategies, improve reading comprehension, and build vocabulary (Roberts, Torgesen, Boardman & Scammacca Lewis, 2008). Students with

difficulties reading to learn, miss out on important content area information, vocabulary, and world knowledge (Morgan & Fuchs, 2007).

"Motivated students usually want to understand text content fully and therefore, process information deeply. As they read frequently with these cognitive purposes, motivated students gain in reading comprehension proficiency" (Guthrie et al., 2004, p. 403). Students who are not engaged in their reading are less likely to put forth the effort to comprehend, resulting in missed opportunities to become proficient at understanding complex text (Roberts et al., 2008). Conversely, struggling readers do not typically read for pleasure and may avoid embarrassing situations that would publicly disclose their reading difficulties. Adolescent readers are in classrooms that are not likely to emphasize motivation to read; yet are expected to read increasing difficult material. Motivating and engaging students in reading is a key aspect of adolescent literacy instruction (Guthrie & Davis, 2003).

Dyslexia in the State of Texas

In the State of Texas, the Texas Education Agency has outlined the characteristics of a student with dyslexia in the *Dyslexia handbook 2018 Update: Procedures concerning dyslexia and related disorders* (TEA, 2018, p. 1-2). The characteristics as listed in the *Dyslexia Handbook (p.1-2)* are as follows:

The following are the primary reading/spelling characteristics of dyslexia:

- Difficulty reading words in isolation

- Difficulty accurately decoding unfamiliar words

- Difficulty with oral reading (slow, inaccurate, or labored)

- Difficulty with spelling

Reading and spelling characteristics are most associated with the following:

- Segmenting, blending, and manipulating sounds in words (phonologcial awareness)

- Learning the names of letters and their associated sounds

- Holding information about sounds and words in memory (phonological memory)

- Rapidly recalling the names of familiar objects, colors, or letters of the alphabet (rapid naming)

Consequences of dyslexia may include the following:

- Variable difficulty with aspects of reading comprehension

- Variable difficulty with aspects of written composition

- Limited vocabulary growth due reduced reading experiences

Texas was the first state in the United States to pass a law requiring schools to define dyslexia, assess, and provide intervention for students with dyslexia (Hanson, 2017). The Texas State Board of Education (SBOE) approved the first set of procedures and guidelines to implement the state's dyslexia law in January 1986 (TEA, 2018). At this time, SBOE also approved the first handbook, *Dyslexia and Related Disorders: An Overview of State and Federal Requirements (TEA, 2018).* The 72nd Legislature passed HB1314 in 1991; this bill allowed accommodations for students with dyslexia. The next year, 1992, the SBOE approved the new guidelines called the *Revised Procedures Concerning Dyslexia and Related Disorders* (TEA, 2018).

Since the first approved handbook in 1986, the *Dyslexia Handbook* has been updated and revised six times to include current research of the experts in dyslexia, information to support early intervention and quality training of teachers (TEA, 2018).

The current handbook, *Dyslexia Handbook – 2018 update: Procedures Concerning Dyslexia and Related Disorders* provides guidelines to school districts, charter schools, campuses, teachers, and parents/ guardians in the state of Texas about the early identification, intervention, and accommodations for students with dyslexia as approved by the SBOE (TEA, 2018).

Texas State law requires Texas public or charter schools to assess and remediate students with dyslexia. Screening and Treatment for Dyslexia (2019) states, "Students enrolling in public schools in this state shall be tested for dyslexia and related disorders at appropriate times in accordance with a program approved by the State Board of Education." Students with Dyslexia and Related Disorders (2018) states the appropriate time to assess for dyslexia is early in a student's school career. The handbook gives instructions regarding the importance of not delaying identification and intervention for students suspected of having dyslexia (TEA, 2018). Although Screening and Treatment for Dyslexia (2019) requires all kindergarten and first grade students be screened for dyslexia disorders, it is important to be cognizant of students who may have reached middle school or high school without being screened, evaluated, or identified with dyslexia or a related disorder (TEA, 2018). A student may be referred for a dyslexia evaluation at any time kindergarten – high school (TEA, 2018). The *Dyslexia Handbook* states parents and/or guardians have the right to request a referral for a dyslexia evaluation at any time (TEA, 2018). School districts must not delay or deny evaluations due to screening or RTI processes (TEA, 2018).

In 1997 changes were made to the reading curriculum, and as a result, the first phonics-based reading curriculum was passed in Texas. By 2009, the curriculum was

updated with a stronger, explicit, scientifically researched phonics curriculum (TEA, 2018). Texas State law mandates public and charter schools provide remediation to the student identified with dyslexia by purchasing or developing a reading program. The *Dyslexia Handbook* also outlines specific components that are to be included in a dyslexia intervention program (19 Tex. Admin. Code §74.28, 2018). The purchased or developed program must be taught with fidelity. The state of Texas requires students with dyslexia to receive intervention by a certified teacher (TEA, 2018). The Texas Education Agency's regional education centers provide TEA approved dyslexia training to teachers (TEA, 2018).

The Rehabilitation Act of 1973 (Section 504) is a civil rights law that protects individuals with disabilities against discrimination (TEA, 2018). The purpose of Section 504 is to provide equal educational opportunity mainly through classroom accommodations. A student is eligible for Section 504 services if they have a physical or mental impairment that limits one or more of life's major activities, such as reading (TEA, 2018). The *Dyslexia Handbook* details that dyslexia eligibility and placement is determined by a committee of knowledgeable persons or a Section 504 committee for decision-making (TEA, 2018). According to the *Dyslexia Handbook*, "In the case of a student with dyslexia, the Section 504 committee must include a member with knowledge regarding: the reading process, dyslexia and related orders, dyslexia instruction, district or charter school, state, and federal guidelines for assessment" (TEA, 2018, p.121). Then the 504 committee determines if the student is dyslexic, they must also determine if the child should be provided services under Section 504. Merely having dyslexia does not qualify an individual as Section 504 (TEA, 2018). The 504 committee will meet to

discuss the assessment results and determine eligibility. If the student qualifies as a student with dyslexia under Section 504, the committee will develop an accommodation plan which generally includes classroom and state testing accommodations as well as dyslexia intervention (TEA, 2018). A school district or charter school must purchase or develop its own reading program for students with dyslexia (TEA, 2018).

According to the *Dyslexia Handbook*, a dyslexia instructional program must be explicit, systematic and intentional as well as evidenced based, taught by an appropriately trained instructor, and implemented with fidelity (TEA, 2018). All teachers will receive a copy of the documented accommodations and will implement these in classroom instruction. If at any time the student is not being academically successful, any member of the Section 504 committee may request a meeting to discuss the student's progress and make any necessary changes to the accommodation plan (TEA, 2018).

Many students in Texas are identified and receive dyslexia services under Section 504. However, according to the *Dyslexia Handbook*, "the evaluation, identification, and provision of services for students with dyslexia are guided by the Individuals with Disabilities Education Act (IDEA) and Section 504 of the Rehabilitation Act of 1973" (TEA, 2018, p.21). If a school suspects a student has dyslexia or a related disorder, it must consider if standard protocol dyslexia instruction or specially designed instruction would best meet the student's needs (TEA, 2018). If the data leads the team to suspicion of only dyslexia and specially designed instruction is not necessary to meet the needs of the student, they must refer the student for an evaluation under Section 504 (TEA, 2018). If the data leads to the suspicion of a disability that would require specialized instruction,

the student would be referred for an evaluation under IDEA (TEA, 2018). The following

table illustrates the differences of IDEA and Section 540 (TEA, 2018; Sherman, 2019):

Table 1

Difference Between IEP and Section 504

Question	IEP	Section 504
What is it?	Plan for entering Special Education	Plan for students with dyslexia to receive accommodations and modifications in their classroom
What is provided?	Individualized special education and special services; students leaves the general education classroom.	Changes to the current learning environment; student stays in the general education classroom.
What is the law?	Individuals with Disabilities Act of 1975.	Rehabilitation Act of 1973.
Who is eligible?	Students with dyslexia fall under the Specific Learning Disability category in the list of disabilities that qualify for special education services.	Students who have a documented disability that interferes with their ability to learn in the general education classroom.
Who is involved in the process?	Parents, classroom teachers, special education teachers, school psychologists, and district representatives.	Parents, teachers, administrators, and anyone else who is familiar with the student and the student's evaluation and testing.

Relationship of Phonemic Awareness to Dyslexia

The terms phonological and phonemic awareness are often used interchangeably.

However, they do have different meanings. Phonological awareness is an understanding

of how spoken language can be broken into smaller components and manipulated (Binks-

Cantrell, Joshi, & Washburn, 2012). Phonological awareness starts at the word level and

increases to smaller units of sound discrimination (Anthony, Lonigan, Driscoll, Phillips,

& Burgess, 2003). The subcomponents include word awareness, syllable and rhyme awareness, sentence awareness and phonemic awareness (Kenner, Terry, Friehling, & Namy, 2017). This is the earliest state of learning to read (Shaywitz, 2003). Phonemic awareness is the ability to hear, identify, and manipulate phonemes (the smallest meaningful unit of sound). This sub-skill of phonological awareness is developed later than the other components of phonological awareness. It emerges during the school-aged years with explicit and formal reading instruction and is the final precursor to begin skilled reading (Kenner et al., 2017).

There has been a consensus among researchers about the critical importance of phonemic awareness to reading achievement (Hatcher, Hulme, & Ellis, 1994; Share, 1995). To be a fluent reader, the ability to effortlessly identify words by sight is necessary. Children with dyslexia have difficulty developing their phonemic awareness skills, that is, they are not able to decode an unknown word based on spelling pattern knowledge. Stanovich (1986) defined phonemic awareness as "conscious access to the phoneme level of the speech stream and some ability to cognitively manipulate representation at this level" (p. 362).

Reading development has three stages: logographic, alphabetic, and orthographic (Frith, 1985). Children begin to distinguish the shapes of words by sight in the logographic stage. Children begin to use their understanding of the letter-sound relationship to sound out unfamiliar words in the alphabetic stage. Finally, children automatically identify words in the orthographic stage. Children with dyslexia have difficulty transforming from the logographic stage to the alphabetic stage because they cannot convert the letter-sound association from printed words. Phonemic awareness

begins with recognition of larger units, such as syllables, then moving to recognizing individual phonemes (smaller units) in words (Anthony et al., 2003). Due to having a phonemic awareness deficit, children with dyslexia are at a disadvantage in developing their literacy skills (Snowling, 1989).

Snowling (1989) claimed children with dyslexia find it challenging to make the transition from the logographic stage to the alphabetic stage of reading because they are unable to convert the letter-sound correspondences from printed words. He advised children with dyslexia depend on sight vocabulary because they have not adequately developed their phonemic awareness skills. Strong phonemic awareness skills are the largest factor in the ability of children with dyslexia who are just entering school to acquire literacy (Adams, 1990). Subsequent research on multisensory reading programs unmistakably demonstrated phonemic awareness can be developed through explicit, formal instruction and may significantly speed up the reading achievement of children with dyslexia (Rashotte, MacPhee, & Torgesen, 2001; Shaywitz, 2003).

Dyslexia Interventions

NICHD (2000) reports decoding, fluency, and comprehension are necessary aspects of teaching reading. Key features of effective reading instruction include explicit training in phonological awareness, strong focus on phonological decoding and word-level work, supported and independent reading of progressively more difficult texts, and practice of comprehension strategies while reading texts (NICHD, 2000; Rose, 2009). Dyslexia is the result of a phonological deficit and this must be addressed through intervention. Explicit instruction of letter-sound relationships or systematic phonics is needed to teach decoding efficiently (NICHD, 2000). Students with dyslexia should

receive intensive phonics-based interventions and reading instruction by highly trained teachers (Moats, 2010). These interventions should be systematic, well- structured and multisensory (Snowling, 2013).

According to Marchand-Martella, Martella, Modderman, Petersen, & Pan (2013) fluency is most efficiently taught through guided, repeated oral reading. Comprehension is best taught through a combination of both direct and indirect vocabulary instruction. Explicit text comprehension is found to be taught most effectively through monitoring, cooperative learning, semantic organizers, question answering, analysis, and summarization (Marchand-Martella et al., 2013). The most effective interventions for children experiencing difficulties learning to read were identified as systematic phonics instruction, repeated readings, vocabulary instruction, and comprehension strategy instruction (Schneider, Roth, & Ennemoser, 2000). Interventions should include direct teaching and learning, time for consultation with specialists, and revisions as needed (Snowling, 2013).

Rigorous, phonologically- based interventions have been found to be the essential and foundational factor to remediating children identified with dyslexia. (Schneider et al., 2000). This type of intervention, combined with the components of the teaching of specific word identification and self-directing monologue, is possibly even more effective in remediation of students with dyslexia (Morris et al., 2012). Early intervention focused on letter/sound correspondence, fluency, and phonemic awareness may produce significant reading improvements (Shaywitz et al., 2003). Specific and individually tailored reading instruction using research-based intervention or approaches has been found to be an effective remediation (Snowling & Hulme, 2011).

Teachers of dyslexia and general education students should provide multiple opportunities to support intervention and strengthen reading and writing skills. Classroom teachers, reading specialists, interventionist, and teachers of dyslexia programs share the responsibility for teaching reading and writing to students with dyslexia (TEA, 2018). The Orton-Gillingham approach (OG) is a distinguished phonics -based program created on research which supports phonemic deficits as a basis for dyslexia (IDA, 2014). OG was the first reading program designed for struggling readers which teaches the connections between sounds and letters (IDA, 2014). The focus of OG is to teach students to read at word level, rather than focusing on reading comprehension. Students are taught to break down reading into smaller skills, building on these skills over time (IDA, 2014). OG pioneered multisensory structured language instruction (IDA, 2014). The multisensory approach involves sight, hearing, touch, and movement to teach students to connect language with letters and words (IDA, 2014). OG provides explicit instruction that is systematic, sequential, and phonics based (IDA, 2014). Students are first assessed to determine their reading skills, strengths, and weaknesses. Students are then grouped by reading skill level into small groups where the teacher will teach skills in a particular order. Instruction is individualized, based on deficits in reading components, to meet the learning needs of the students with dyslexia (IDA, 2014). Students must master one reading skill before moving on to the next (IDA, 2014). The goal is for students to use the skills they have learned to decode words independently. OG has proven to be successful for teaching students with dyslexia to read and write (Fisher & Frey, 2007).

The state of Texas uses OG as the designated evidenced based intervention approach for remediating students with dyslexia (TEA, 2018). Many reading programs incorporate ideas and strategies based on the Orton-Gillingham approach (IDA, 2014). These include the Barton Reading Program (Barton Reading and Spelling System, n.d.) and the Wilson Reading System© (Wilson Language Training Corporation, n.d.). While these programs do vary, they all use a highly structured, multisensory approach.

Read, Write and Type (RWT), and *The Lindamood Phoneme Sequencing Program for Reading, Spelling, and Speech* (LIPS) are both intervention programs designed to target phonemic awareness, decoding, and text reading (Torgesen, Wagner, Rashotte, Herron, & Lindamood, 2010). These intervention programs are computer-based instruction programs which include a teacher support component (Torgesen et al., 2010). Even though both of these programs indicated that students who participated in them displayed substantial gains in reading skills, neither of these programs has shown retention of these gains over time (Torgesen et al., 2010). An additional computer-based intervention program, *Living Letters,* is used to improve or teach phoneme skills and is implemented without teacher input (Kegel, van der Kooy-Hofland, & Bus, 2009). This program was not found to be effective for children with poor self-regulatory skills and very low-level reading skills (Kegel et al., 2009).

There are many research-based interventions, and not all are based on phonology. A variety of methods of intervention are available due to the extensive debate about the origin or cause of dyslexia and the appropriate remediation (Berninger & Richards, 2010; Menghini, Finzi, Carlesimo, & Vicari, 2011). While some of these interventions seem to

contain strategies regarding remediation of phonological deficits, others seem to disregard the idea of phonological deficits entirely (Blomert & Willems, 2010).

The magnocellular theory of dyslexia includes interventions that are not phonologically based. This concept of this theory is word recognition and visual language processing related to the magnocellular, or vision system (Levy, Walsh, & Lavidor, 2009). One method of intervention founded on this theory was vision training. Several studies state vision training has a positive effect on the improvement of dyslexia symptoms (Chouake, Levy, Javitt, & Lavidor, 2012). However, according to Handler and Fierson (2011), many of these studies do not appear to be supported by empirical evidence. Handler (2009) had previous reviews articulating the same concerns regarding empirical research. Lack (2010) refuted the claims that supported vision system, stating the review articles are skewed and do not present a precise depiction of the study and findings based on vision training and its result on dyslexia. The double-deficit hypothesis of dyslexia suggests dyslexia includes deficits in both phonological awareness and visual naming speed (Wolf, 1997). Based on this hypothesis, the recommended effective remediation for dyslexia should consist of intensive word identification training in combination with phonics training (Lovett, Steinbach, & Frijters. 2000). Direct instruction combined with strategy instruction, or metacognitive strategies, has resulted in positive effects in the remediation of dyslexia (Morris et al., 2012).

Brain imaging has shown how several of these interventions have been able to stimulate formerly underactive portions of the brain associated with reading (Shaywitz et al., 2003). Magnetic source imaging (MSI) scans completed on children with dyslexia after intensive interventions have revealed what seem to be substantial increases in brain

activity in the area that supports grapheme-phoneme coding (Simos et al., 2002). These studies suggest the increased brain activity area is linked to improved reading skills and signifies the importance and benefits of intervention and remediation (Simos et al., 2002).

Based on research conducted about the subject, the most effective interventions are phonics-based, multisensory programs (Thomson, Leong, & Goswami, 2013; Torgesen et al., 2010). Understanding and implementing the appropriate interventions to remediate dyslexia is important; however, there are many misconceptions about dyslexia. To better understand dyslexia, we must debunk these myths by discussing what dyslexia is not.

Common Misconceptions Regarding Dyslexia

The most common misconception about dyslexia is simplifying the condition to letter or word reversals (Hudson, High, & Al Otaiba, 2007). While letter or word reversals may be an indication of possible dyslexia (Ness & Southall, 2010), they are not a consistent indicator. Many young children who are just learning to read and write may exhibit letter or word reversals. These reversals, at a young age, are more related to developmental levels rather than possible dyslexia (Adams, 1990). Most children who display developmental letter or word reversals do not retain them for long; however, the children with dyslexia are more inclined to continue with letter or word reversals (Ness & Southall, 2010).

Another misconception about dyslexia is the belief that boys are far more likely to be disposed to this disorder than girls even though both genders exhibit the traits evenly (Shaywitz, Shaywitz, Fletcher, & Escobar, 1990). This observation is based on externalizing behavior, which boys seem to take part in more often than girls (Prochnow,

Tunmer, Chapman, & Greaney, 2001). These externalizing behaviors can be seen as aggressive and disruptive and can interrupt classroom learning. Because boys appear to engage in these behaviors more frequently than do girls, there is a tendency to over-identify based on these externalizing behaviors rather than an actual significant difference in dyslexia frequency (Ness & Southall, 2010).

A common myth is that dyslexia can be outgrown (University of Michigan, n.d.). This opinion of dyslexia is mistaken as it is a lifelong disorder (Shaywitz et al., 2003) and there is no known cure (Ness & Southall, 2010). According to Ness and Southall (2010) students with dyslexia can learn strategies to compensate and help them become better readers; however, children with dyslexia are still more likely to read more slowly and less accurately than people who are not dyslexic.

Another belief associated with the concept dyslexia can be outgrown is that high achieving students with good grades cannot have dyslexia (The Yale Center for Dyslexia and Creativity, 2017). Students who receive appropriate intervention can, and often do, succeed academically (The Yale Center for Dyslexia and Creativity, 2017). While these students seem to be academically successful and making achievements at an average or even above average pace, they are applying compensatory strategies in a cognizant and active manner (Ness & Southall, 2010). Regardless of reading achievement and academic success, these students will always need to utilize these compensatory strategies to read and to learn (The Yale Center for Dyslexia and Creativity, 2017).

Others contend the common misconception that dyslexia is the outcome of brain damage. Dyslexia is a neurologically based, specific learning disability characterized by complications with word recognition, reading, fluency, and spelling (Lyon et al., 2003).

Studies report dyslexia to be the result of an unexpected phonological deficit; meaning it is not due to cognitive abilities or lack of effective reading instruction (Lyon et al., 2003). Dyslexia has been shown to be hereditary or to be genetic (Galaburda, 2005). Brain damage implies damage is sustained to a previously healthy brain. The genetic basis of dyslexia seems to dismiss the notion of a link to brain damage (Shastry, 2007).

Misconceptions about dyslexia often include the idea of the way words are perceived or "seen" by students with dyslexia. According to Badian (2005), words do not change, move or jump around on the page while the person with dyslexia reads. This common misconception about dyslexia implies it is a visual problem. Although some visual misperception may occur, dyslexia is primarily a phonological deficit, including deficits in auditory processing and working memory (Badian, 2005). It is also neurologically based since the brain processes visual images; dyslexia is not related to ocular problems (American Academy of Pediatrics, Council on Children with Disabilities, American Academy of Ophthalmology, American Association for Pediatric Ophthalmology and Strabismus and American Association of Certified Orthoptists, 2009). Students with dyslexia see words the same way students without dyslexia see words; however, they have difficulty making and recalling the connection between the symbols on the page and the sounds they represent (Tunmer & Greaney, 2010). Interventions centered on a visual theory of dyslexia, such as ocular training, have proven to be ineffective (American Academy of Pediatrics, 1972; Shastry, 2007). Colored overlays, which are positioned over text to enhance the words and make it easier to read, have also been found to be ineffective for students with dyslexia (Hudson et al., 2007; Iovino, Fletcher, Breitmeyer, & Foorman, 1998). However, colored overlays may be

beneficial to children with reading difficulties that include visual perceptual distortions such as blurring, fading, illusory colors (Ludlow, Wilkins, & Heaton, 2006).

An additional common misconception is that dyslexia is due to laziness or lack of effort (Denhart, 2008). Teachers and parents may often see an intelligent student and consider their lack of success as due to a lack of effort. They may advise studying more, reading more, or spending more time on homework. For many students with dyslexia, the energy and work they put into school and classwork are on occasion three times more than that of students without dyslexia (Denhart, 2008). The effort students with dyslexia put into schoolwork often leaves them exhausted or ill (Rodis, Garrod, & Boscardin, 2001). As a result of this extra effort, students may experience academic success. This academic success only seems to substantiate the idea that students with dyslexia do not need any additional accommodations (Lock & Layton, 2001).

Another misconception regarding dyslexia is students with dyslexia cannot learn to read (Spafford & Grosser, 2005). It is also a common misconception that students with dyslexia are less intelligent than students without dyslexia (Williams & Lynch, 2010). This perception may originate from the fact most normally developing students learn to read without the difficulties students with dyslexia experience. It may seem to those without accurate knowledge of dyslexia, that any student who struggles to read must have some intellectual deficit. Children with dyslexia do not have an intellectual deficit but rather a phonological deficit (Ferrer et al., 2010). Williams and Lynch (2010) state the intelligence of children with dyslexia is average to above average.

According to Tanaka et al. (2011), although intelligence associated with dyslexia remains ambiguous, clinical and research methods state dyslexia requires reading skill to

be significantly below the level expected given an individual's IQ. Tanaka et al. (2011) completed a study where poor readers with high IQs and low IQs were examined with functional magnetic resonance imaging (fMRI) to compare brain activity during phonological processing that is characteristic of dyslexia. Poor readers with high IQ and poor readers with low IQ scores demonstrated similar patterns of reduced activity in the brain areas that process word form and word analysis. According to the study results, poor readers have similar kinds of reading problems with phonological processing regardless of IQ (Tanaka et al., 2011).

Undiagnosed Dyslexia

The effects of dyslexia begin when students do not meet educational expectations due to challenges in learning to read (Tunmer & Greaney, 2010). The lack of academic success in reading can translate into remaining issues, which can affect other life areas as well. Students could have problems which include emotional, social, and behavioral issues (Terras, Thompson, & Minnis, 2009), anxiety and depression (Undheim, Wichstrøm, & Sund, 2011), social skills issues (Barber & Mueller, 2011), and even problems that follow well into adulthood (McNulty, 2003).

Unidentified students with dyslexia may also be at risk for adverse classroom behaviors (Trzesniewski, Moffitt, Caspi, Taylor, & Maughan, 2006) such as disappointment, sadness, anger, frustration, depression, shame, and/or embarrassment (Alexander-Passe, 2006; McNulty, 2003). These behavioral issues can transform into classroom conduct problems (Tunmer & Greaney, 2010). Researchers have shown higher reading scores may result in a decreased risk of conduct problems (Bennett, Brown, Boyle, Racine, & Offord, 2003). According to Mullis, Martin, Kennedy and Foy (2007),

research indicates boys appear to display more negative classroom behavior than girls.

These external behaviors can increase the likelihood that a student will be referred for

reading intervention or tutorials (Prochnow et al., 2001). Some researchers do not agree

with this correlation (Johnson, McGue, Iacono, 2005; Kempe, Gustafson, & Samuelsson,

2011; Smart, Sanson, & Prior, 1996) although there is indication of a connection between

dyslexia and negative classroom behaviors (Bennett et al. 2003; Trzesniewski et al.,

2006). Prochnow et al. (2001), indicates negative classroom behavior as being linked

with lower academic achievement. It can be challenging to conclude whether

undiagnosed dyslexia triggers the adverse behaviors as a reaction to lowered achievement

or whether these behaviors are naturally associated with dyslexia.

Insufficient Services and Resources

The Dyslexia Research Institute (2009) reported 5 out of every 100 students with

dyslexia are identified and receive appropriate interventions. Many students with dyslexia

do not seem to receive the interventions and resources for appropriate remediation for

their disability (Dyslexia Research Institute, 2009). The challenge with identifying

dyslexia is a factor in this lack of remediation. Early identification has the most

substantial positive effects on the educational development of students with dyslexia

(Gibson & Kendall, 2010). However, Hallahan and Kauffman (2006) note because early

identification of dyslexia is difficult, services and resources may not be received at this

crucial point. Differentiating between what may be a mild delay or what might be true

dyslexia is difficult due to the wide range of normal development, and very young

children do not typically engage in academic tasks (Hallahan & Kauffman, 2006).

Furthermore, because what seems to be early reading skill might in fact only be

memorization and not decoding, more challenges are added to the possibility of

identifying dyslexia (Gray, 2008). Shaywitz (2003) indicated children with dyslexia often

fail to make good sound-symbol associations as they learn to read, thus memorize words.

As children grow older, identification may become concealed by behavioral

issues or low-motivation due to repeated academic failure (Tunmer & Greaney, 2010).

Likewise, behavioral problems related to comorbid attention deficit disorders (ADD) also

may impede identification (Boada, Willcutt, & Pennington, 2012). An exceptionally high

frequency of comorbid ADD and dyslexia explains another lost opportunity to identify

and provide services to students with dyslexia (Dyslexia Research Institute, 2009).

Another barrier to services and resources for students with dyslexia is the

inadequate training or support for classroom teachers who teach students with dyslexia.

Students with dyslexia might not receive appropriate and effective literacy instruction

due to teachers' misunderstanding of dyslexia (Washburn et al., 2013). Many pre-service

training programs require limited coursework in special education for general education

teachers teaching in inclusive classrooms (Sharma, Loreman, Forlin, 2012). Many

teachers report their pre-service training only required one special education course

(Bocala, Morgan, Mundry, Mello, 2010). Reading teachers must not only have accurate

information about dyslexia but also understand the nature and characteristics of dyslexia

(Washburn et al., 2013). Students with dyslexia must receive instructional intervention

that includes evidence-based and targeted phonological awareness as well as systematic

instruction in decoding and fluency (Mather & Wendling, 2012; Snowling & Hulme,

2012). Many researchers believe there is a knowledge gap between these essential

instructional components for students with dyslexia and instructional practices in the

general education classroom (Budin, Mather, & Cheesman, 2010; Moats, 2009; Youman & Mather, 2018). Therefore, many general education teachers are not prepared to teach in inclusive classrooms and are unable to provide appropriate resources and services to students with dyslexia (Crowe, 2010). Special education teachers are also not sufficiently trained to provide appropriate services and resources to students with dyslexia (Burns & Ysseldyke, 2009).

Teachers' Knowledge about Dyslexia

According to the International Dyslexia Association (2017), 15–20% of the U.S. population has signs of dyslexia. Students with dyslexia who are being educated in inclusive classrooms have precise educational needs that must be met by their teachers for them to have educational success (Snowling & Hulme, 2011). These needs include multisensory education and explicit instruction, which help these students' access successful learning (Aboras, Elbanna, Abdou, & Salama, 2012). Teachers report they do not have enough knowledge or involvement in dealing with this disability (Ness & Southall, 2010). Teachers state a need for more professional development and preparation in the area of dyslexia (Kantor, 2011).

Ness and Southall (2010) conducted a qualitative study to examine pre-service teachers' conceptions of dyslexia. The researchers found although the majority of the participants had an overall understanding of dyslexia as a reading disorder, most did not understand it was a language-based reading disability or its relationship to phonological processing (Ness & Southall, 2010). Most participants listed letters and words written backwards as a primary characteristic of dyslexia. This 2010 study also found teachers to be confused and did not have the knowledge to best teach students with dyslexia. Ness

and Southall (2010) found 33% of the participants did not have experience with dyslexia and no understanding of providing instruction to a student with dyslexia. The researchers also determined teacher education programs were not efficiently providing information to teachers. The results of this study calls for a more comprehensive look into how teacher training and professional development programs address dyslexia (Ness & Southall, 2010).

The findings in a study conducted by Washburn et al. (2011b) supported the research of Ness and Southall (2010). The survey results revealed 91% of teachers indicated number and letter reversals as characteristics of dyslexia, and 87% of teachers reported they had not received training or professional development to work with dyslexic children (Washburn, et al., 2011b). According to Rose (2009), teacher education programs should at a minimum prepare classroom teachers to be knowledgeable of signs of dyslexia and know where to seek advice on what steps are needed to support children at risk.

Teachers have misconceptions and a lack of knowledge about the characteristics of dyslexia including beliefs that word and letter reversal is the primary symptom of dyslexia (Ness & Southall, 2010; Shaywitz et al., 2003). A recent report by Horowitz, Rawe, and Whittaker (2017) states many educators believe students with dyslexia are as smart as their peers, they also think what is being called a learning disability is just laziness. Additional studies have suggested teachers are not familiar with appropriate terminology associated with reading instruction (Washburn et al., 2011b) or only have a moderate amount of knowledge relating to dyslexia (Gwernan-Jones & Burden, 2010). Research has found educators do not have a sufficient understanding of dyslexia (Wadlington & Wadlington, 2005).

Teachers are confused about dyslexia and how to teach students with dyslexia (Aladwani & Al Shave, 2012). Snowling and Hulme (2011) report well-documented evidence showing phonologically based interventions are effective in teaching children with dyslexia. However, teachers are not receiving the specific knowledge and instruction to teach these evidence-based methods (McCray & McHatton, 2011). Many teachers reported not being provided enough information and some information was conflicting. This lack of understanding led to very few teachers having the ability to accurately and articulately discuss dyslexia (Worthy et al., 2016)

The state of Texas requires educator preparation programs (EPP) to provide teaching candidates appropriate instruction to detect and educate students with dyslexia (Educator Preparation, 2019). The EPP curriculum requirements must include information regarding characteristics of dyslexia, identification of dyslexia, and effective, multisensory strategies for teaching students with dyslexia (Educator Preparation, 2019).

Teachers' Pre-Service and In-Service Training

Research has shown the majority of teachers do have adequate training, knowledge or skills to identify indicators or characteristics of dyslexia (Aladwani & Shaye, 2012). According to Aladwani and Shaye (2012), establishing professional development and requiring courses about dyslexia at colleges and universities is essential to increasing teacher knowledge and understanding of dyslexia.

Current teacher pre-service workshops do not provide opportunities for general education teachers to become proficient in educating children with dyslexia (Smith & Tyler, 2011). General education teachers' college training programs have a tendency to focus on knowledge gaining with little attention being paid to practical strategies for

teaching students with dyslexia (Sharma et al., 2012). Additionally, general education teachers have no training on appropriate teaching methods to address the learning challenges of students with dyslexia (Chiner & Cardona, 2013). Classroom teachers need professional development, which includes up to date practices and methods for students with learning disabilities, such as dyslexia, comprised of transitions, student grouping, behavior management strategies, and classroom accommodations (Bateman & Bateman, 2014). Teachers with limited knowledge of dyslexia could have a negative reluctance toward students with dyslexia which could result in some form of anxiety (Gabor, 2010; Nonis & Jernice, 2011), feelings of general discomfort (Yıldız, Yıldırım, Ateş, & Rasinsky, 2012), uncertainty, or vulnerability when interacting with students with dyslexia (Washburn, et al., 2011b). Moats (2010) found a strong relationship between teachers' knowledge of dyslexia and practice and student achievement in reading. Many teachers have stated they are not prepared to teach children with dyslexia in inclusive classrooms (McCray & McHatton, 2011). Teachers expressed interest in receiving more training related to dyslexia in order to combat ineffective teaching methods (Kantor, 2011; Moats, 2010).

New and inexperienced teachers continue to report they do not have essential skills to teach in inclusionary classrooms (Forlin, Loreman, Sharma, & Earle, 2009). Teacher training programs should include visitations to inclusive classrooms (Nonis & Jernice, 2011) to help student teachers gain the necessary experience and knowledge to teach students with dyslexia (Mattson & Roll-Pettersson, 2007). In contrast to general education teachers, researchers found special education teachers who received training on strategies for teaching disabled students were comfortable working with students with

dyslexia (Petkova, Kudlácek & Nikolova, 2012). Proper college training programs on how to teach disabled students will increase teachers' confidence in working with students with dyslexia (Nonis & Jernice, 2011).

Providing teachers with professional development opportunities on how to teach students with dyslexia in inclusionary classrooms would address the lack of dyslexia training (Guskey & Yoon, 2009). Researchers found students show academic improvement when teachers are offered and receive specialized and continuous professional development Guskey and Yoon (2009). Gallardo, Heiser, and Arias-McLaughlin (2015) found professional development activities had a positive effect on teachers' attitudes and practices for supporting students with dyslexia.

McCray and McHatton (2011) completed a study in which teachers were more positive to inclusive classrooms after taking an integrating course. Guskey and Yoon (2009) are proponents of professional development opportunities that motivate teachers toward positive attitudes and classroom practice. Teachers with a positive attitude toward students with dyslexia are inclined to implement effective teaching interventions beneficial to students with dyslexia (Leyser & Romi, 2008). As a result, teachers who know how to accommodate students with dyslexia are successfully helping students to achieve academic success (Lambe & Bones, 2008). Research has shown teachers' positive attitude toward students with dyslexia gives students with dyslexia the confidence they need to do well in inclusive classrooms (Sharma, et al., 2012). On the contrary, researchers have found teachers with a negative attitude towards students with dyslexia are not only unaccommodating but negatively influence the academic

achievement of the students (Hornstral, Denessen, Bakker, van den Bergh, & Marinus, 2010).

Washburn et al. (2011b) found teachers are unable to provide effective reading instruction to students with dyslexia because they have a poor understanding of dyslexia. Teachers who receive professional development to gain awareness through learning and understanding more about phonics, morphology and phonology will considerably improve their understanding on how students with dyslexia process information (Bjorklund, 2011).

Through trainings such as these a common language and understanding are developed across all academic areas and levels, so that teachers are better prepared to accommodate students with dyslexia. Research has shown teachers reported they often go above and beyond to comply with dyslexia laws and federal mandates (Worthy et al., 2016). Mattson & Roll-Pettersson (2007) found teachers with the knowledge and understanding of developmental dyslexia are able to easily identify those students who are struggling to read and write in their classrooms. Teachers are more inclined to implement research-based instructions that accommodate individual learning differences of students with dyslexia when they have the necessary knowledge of how dyslexia has an impact on learning (Washburn et al., 2011b). The research by Worthy et al. (2016) found many teachers sought out additional information through books, professional development, as well as help from specialists and other colleagues.

Summary

Dyslexia is a reading disability due to a phonological deficit that is neurological in origin. Fifteen to twenty percent of the population is dyslexic (IDA, 2017). Texas was

the first state in the United States to pass a law requiring schools to define dyslexia, assess and provide intervention for students with dyslexia (Hanson, 2017). The School Board of Educators and TEA continue to revise and update guidelines which include an explicit, scientifically researched phonics curriculum (TEA, 2018). To this end, TEA (2018) created a handbook outlining the definition and data driven interventions acceptable for implementation in the state. Students with dyslexia are provided services through Section 504. The Section 504 committee meets to discuss assessment results, determine eligibility, and provide accommodations for students with dyslexia (TEA, 2018).

Dyslexia is a disorder which has numerous common misconceptions. People identified with dyslexia see the words on the page the same as people who do not have dyslexia (Badian, 2005; Hudson et al., 2007) and do not suffer from brain damage (Williams & Lynch, 2010). Students with dyslexia work extremely hard, often this effort is three times more than students without dyslexia (Denhart, 2008). People with dyslexia are intelligent, sometimes their intelligence is above average (Shastry, 2007). Studies have proven an equal number of boys and girls are dyslexic (Shaywitz et al., 1990). Dyslexia is a life-long disability; however, with remediation, students can achieve academic success (Greene, 2015).

Undiagnosed dyslexia can lead to severe troubles such as difficulty learning to read (Tunmer & Greaney, 2010), social issues and behavioral issues (Trzesniewski et al., 2006). Identification, which is the first step in remediation and is the most beneficial early on (Gibson & Kendall, 2010), may not be accomplished (Hallahan & Kauffman, 2006). Without identification, resources and services, such as research-based

interventions, may not be provided for students with dyslexia (Colker, Shaywitz, Shaywitz, & Simon, 2013). Teachers need to have knowledge and understanding of developmental dyslexia to be able to effectively teach children with dyslexia (Ness & Southall, 2010). However, researchers state many general education teachers are not adequately prepared (Cohen, Hoz, & Kaplan, 2013) and are not able to create effective inclusive classrooms (Jobling & Moni, 2004).

Long, MacBlaine, and MacBlaine (2007) state, "high-quality teaching is vitally important if learners with dyslexia are to make progress with their academic learning." (p.125). Teachers are not addressing the holistic needs of the dyslexic learner (Long et al., 2007). The Iris Center (2012) explains, teacher perceptions are based on their background knowledge and past experiences. These experiences might involve their education, work, community, family, or culture. Kirby, Davies and Bryant (2005) describe having an awareness of a term is different than having knowledge and understanding of its meaning. According to Reed (2011), with knowledge comes certainty. Training of teachers is important on a number of levels, which include changing misconceptions, improving negative attitudes and solving issues of identification and remediation; therefore, the in-depth and continuous training of teachers cannot be neglected.

CHAPTER III

METHODOLOGY

Purpose

The purpose of this phenomenological study was to describe the perceptions of English-Language Arts teachers in grades six through eight regarding their preparation and knowledge related to recognizing students with characteristics of dyslexia. A qualitative study supports a more in-depth account of teacher knowledge of dyslexia (Washburn et al., 2011b). Students with dyslexia struggle with phonemic awareness, poor word decoding, and problems with verbal memory – they know the word but are unable to retrieve it (Brady & Moats, 1997). According to the International Dyslexia Association (2017), students with dyslexia require explicit, cumulative and focused reading instruction. Teachers still lack appropriate training and knowledge about dyslexia (Bell, 2013; Gwernan-Jones & Burden, 2010), and more professional development and better teacher preparation is necessary to reduce the number of children who are not meeting reading expectations (Brady & Moats, 1997). Early intervention is critical because if these reading difficulties go unaddressed, students will be affected throughout their school years (Bos et al., 1999.) Bos et al. (1999) also state teachers must be knowledgeable and capable of providing the most explicit and effective methods for teaching at-risk students. Teachers need the opportunity to receive collaborative professional development to meet the needs of students with reading difficulties (Bos et al., 1999.) This chapter details the methodology used in the study, including research design, selection of participants, context, and setting, instrumentation, data collection, and data analysis.

Research Design

In this descriptive study, the researcher used the qualitative phenomenological methodology to explore and more clearly describe the fundamental perceptions of teachers regarding knowledge and professional development related to recognizing characteristics of dyslexia in students. A phenomenological study is useful for examining a specific problem within a school, or setting, from the perspective of those involved; therefore, a phenomenological inquiry would be appropriate to explore this perspective (Creswell, 2013). The role of the qualitative researcher is to study things in their natural setting, attempting to interpret the phenomena in relation to the meanings people bring to them (Denzin & Lincoln, 2005). As participants share their feelings by describing what they perceive and sense through their self-awareness and experiences, the researcher will gain understanding and knowledge. The research questions used to gain more understanding and knowledge of the phenomenon were:

1. What are the perceptions of English-language arts teachers in grades 6-8 regarding their current knowledge on recognizing students with characteristics of dyslexia in the general education classroom?

2. What are perceptions of English-language arts teachers in grades 6-8 regarding professional development on recognizing students with characteristics of dyslexia in the general education classroom?

3. What are perceptions of English-language arts teachers in grades 6-8 regarding recommendations for improving professional development on recognizing students with characteristics of dyslexia in the general education classroom?

Though the focus of the research is qualitative in nature, the research also collected survey data to better understand the nature and descriptive statistics of the participants. For the purposes of this chapter, the phenomenological piece of the research was discussed in detail, followed by a brief discussion of the survey data collection methodology in the instrumentation section.

The phenomenological qualitative inquiry method describes how people perceive their surroundings (Merriam, 2009). Phenomenology refers to a person's creation of the meaning of a phenomenon rather than external perspectives of the phenomenon. The phenomenon may be a relationship, an emotion, or even an educational program (Creswell, 2013). The purpose of phenomenology is describing what all participants hold in common while experiencing a phenomenon, with the purpose of synthesizing all these experiences into a description of the universal essence (Creswell, 2013). Experimental descriptions can be obtained through protocol writing (having participants write their experiences down), observing, and examining artifacts. However, in-depth interviews are the primary method of phenomenological data gathering (Kvale & Brinkman, 2009). The underlying assumption is multiple realities exist. The focus of phenomenology study is the meanings individuals attribute to their experiences and how they shape these realities (Kvale & Brinkman, 2009)

The data from this study was analyzed using the phenomenological research approaches designed by Bogdan and Biklen (2007). According to Bogdan and Biklen (2007), "Analysis involves working with data, organizing them, breaking them into manageable units, synthesizing, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others" (p. 157). This type of

qualitative inquiry attempts to understand the participants' perspectives and views of social realities (Simons, 2009). The goal is to understand the fundamental nature of the experience by thoroughly investigating the nature of the phenomenon.

The phenomenological researcher must be open-minded toward a changing reality so that he or she is able to explain any observed happenings (Lancy, 1993). Open-mindedness is the willingness to consider the evidence even if it goes against one's favored beliefs, plans, or goals (University of Pennsylvania, n.d.). Van Wilgenburg and Elgar (2013) explain confirmation bias is a tendency in which people search for and interpret data that confirms their beliefs. Lancy (1993) reminds us that during a study, researchers look for trends and patterns in the research, but try remaining objective and not to jump to conclusions. They work to keep an open mind until beginning to analyze all the data. A researcher using the phenomenology must allow the phenomenon to reveal itself in its entirety. Teachers participate in different pre-service and in-service trainings with different backgrounds and varying experiences with students while experiencing common phenomena (Lancy, 1993). The researcher's background as a general education English-Language Arts teacher and dyslexia intervention teacher allowed the researcher to understand the diverse backgrounds as well as have the fundamental knowledge to collect, interpret and analyze the data, while not allowing biases to interfere with the study.

Husserl (1970) stated the researcher should allow the phenomena to "speak for itself ." In other words, let human nature speak or reveal itself and the researcher listen. In this study, the researcher described the perceptions of English-Language Arts general education teachers in grades six through eight regarding knowledge and professional

development related to identifying characteristics of dyslexia from the perspectives of the participants, without the researcher's biases and beliefs (Gall, Gall, & Borg, 2006).

Context and Setting

The setting for this study was two public junior high schools in a large suburban school district in southeast Texas. For this research study, the schools were identified as Campus A and Campus B.

Campus A served approximately 1,771 students in grades sixth through eighth. The school's ethnic population blended many cultures. The ethnic breakdown was 45.6% White, 23.1% Hispanic, 20% Asian, 7.4% African American, 0.2% Pacific Islander, and 3.3% Two or More Races. Approximately 27.9% of the students had intellectual disabilities, and 14.2% were at-risk. The economically disadvantaged population was 5.6%. General education pupil/teacher ratio was 17.8:1. There were 127 staff members on Campus A. The staff was made up of 79.7% female and 20.3% male. The ethnic breakdown of teachers was 78.8% White, 12% Hispanic, 5.2% African American, and 3% Asian. The educational breakdown of highest degree held was 70.5% bachelor's degree, 28.5% master's degree, and 1% doctoral degree. The teachers on this campus had a wide variety of experience with 7% beginning teachers, 26.1% 1-5 years of experience, 36.1% 6-10 years of experience, 27.3% 11-20 years of experience, and 3.4% over 20 years of experience (TEA, 2017).

Campus B served approximately 1,752 students in grades sixth through eighth. The school's ethnic population blended many cultures. The ethnic breakdown was 42.3% White, 31.5% Asian, 19.5% Hispanic, 3.9% African American, 0.2% Pacific Islander, and 2.5% Two or More Races. Approximately 33.9% of the students had intellectual

disabilities, and 13.2% were at-risk. The economically disadvantaged population was

6.3%. General education pupil/teacher ratio was 18.9:1. There were 122 staff members.

The staff was made up of 80.6% female and 19.4% male. The ethnic breakdown of

teachers was 81.1% White, 6.9% Hispanic, 6.6% African American, 1.1% American

Indian, 1.1% Asian, and 3.2% Two or More Races. The educational breakdown of

highest degree held was 69.5% bachelor's degree and 30.5% master's degree. The

teachers on this campus had a wide variety of experience with 1.1% beginning teachers,

25.3% 1-5 years of experience, 26.3% 6-10 years of experience, 28.7% 11-20 years of

experience, and 18.6% over 20 years of experience (TEA, 2017).

Participants

Selecting participants is an important aspect of the research design, and unlike

quantitative research, qualitative researchers insist there is no relationship between the

number of participants and the strength of the research design (Patton, 2015). In

qualitative research, the detailed descriptions provided by the researcher allow others to

determine the applicability to their own setting. The research questions and the type of

study should determine the selection of participants. Typically, having fewer participants

allows deeper inquiry with each individual participant (Patton, 2015).

The participants for this study were purposefully selected from the populations of

English-Language Arts teachers in grades six through eight in a large suburban district in

Southeast Texas on two separate campuses. The purposeful selection process was

conducted by choosing English-Language Arts general education teachers who taught

grades six through eight to participate in the study based on if they could be contacted

and elected to participate or not. Bogdan and Biklen (2003) stated, "the method of

sampling in analytic induction is purposeful sampling. The researcher may choose particular subjects to include because they are believed to facilitate the expansion of the developing theory" (p. 65). The rationale for selecting the purposeful sampling method was, "to develop a deeper understanding of the phenomena studied. A related purpose often is to discover or test theories" (Gall et al., 2006, p. 165). According to Creswell (2013) a phenomenology study involves, "multiple individuals who have experienced the same phenomenon" (p. 112).

The criteria for selection included certified teachers: (a) who were working in a general education classroom, (b) who were employed by Campus A or Campus B, and (c) taught English-language arts. The participants were notified by email invitation to participate in the study. The researcher received approval to conduct this study from the campus IRB Office (Appendix B), the school district IRB (Appendix G), and completed the CITI training (Appendix A). Participants completed survey and interview questions (Appendix C) (Gwernan-Jones & Burden, 2010). The participants were instructed to complete the consent form for the survey (Appendix D) provided through Survey Monkey, then submit the survey. Participants had an opportunity at the end of the electronic survey to self-select to participate in an interview (Appendix E). Interview participants were chosen by stratification from the self-selected teachers. All potential interview participants met the criteria by being part of the sample population. Three participants from each campus were invited to participate in an individual interview session where they were allowed to expand on their professional development and knowledge of dyslexia by answering semi-structured interview questions. Participants completed the Interview Informed Consent Form (Appendix F) before the individual

interviews began. The interviews were held on each campus. The researcher contacted each participant by email to provide informed consent, location, dates and times as responses were received.

The oral and written participant responses were documented and analyzed to describe English-language arts teachers' perceptions of professional development and knowledge related to recognizing characteristics of dyslexia in students. Themes and patterns evolved from responses to survey questions as well as the responses to the interview questions which helped the researcher understand the perceptions of the participants.

Instrumentation

The Dyslexia Knowledge Survey (Gwernan-Jones & Burden, 2010) was used to gather statistical data of English-Language Arts teachers in grades six through eight regarding their perceptions of professional development and knowledge of recognizing students with characteristics of dyslexia in the general classroom. Participants completed the electronic survey within a two-week time frame. At the end of the survey, each teacher had an opportunity to volunteer to participate in one of the six interviews conducted over the course of this study. The interview participants were chosen through stratified sampling from the self-selection responses. The researcher invited one teacher from each grade level at Campus A and one teacher from each grade level at Campus B, for a total of six participants, to participate in individual interviews to further share related knowledge and experiences.

The researcher chose to use an electronic survey delivered through Survey Monkey because all the potential participants had access to the internet and a common

email program at work. In the invitation to participate in the survey, subjects were informed participation was voluntary and there were no repercussions for non-participation. The delivery of the invitation to participate in the survey was timely, and an accurate account of delivery times is available from the research site's computer servers. Survey data can also be recovered in case of unforeseen circumstances, thus protecting collected data.

The individual interviews provided an opportunity for each participant to share examples and scenarios of situations and incidences they experienced while teaching English-languages arts, thus providing the researcher with more knowledge about individual feelings and beliefs of each participant through open-ended dialogue. The researcher recorded and took written notes during the individual interviews.

Reliability and Validity

A semi-structured interview used carefully constructed research questions based on fundamental research in the field (Aladwani & Al Shaye, 2012; Gwernan-Jones & Burden, 2010). Content validity for the instrument was developed by having university professors review the content for accuracy and completion. The survey was adapted from previous research studies and research instruments (Aladwani & Al Shaye, 2012; Gwernan-Jones & Burden, 2010). The researcher's dissertation chair and committee members, serving as experts in teacher professional development and dyslexia, also reviewed the survey.

In order to be considered valid, qualitative research must have truth, applicability, value, consistency, and neutrality (Guba & Lincoln,1989; Erlandson, Harris, Skipper, & Allen, 1993). The survey questions and the semi-structured interview questions met all

five of the validity criteria (Erlandson, et al., 1993; Guba & Lincoln, 1989). The criterion of truth was met by reporting the participants' unaltered responses. The verbal and written responses from each participant were transcribed, entered into the NVivo software program, documented, and coded into categories. The researcher achieved applicability in this study because the results may apply to teachers in other schools. The criterion of value was achieved by examining the descriptions and perceptions of the English-Language Arts participants regarding their perceptions of knowledge and professional development on recognizing characteristics of dyslexia in students in the general education classroom. Consistency was achieved in the study through ensuring every participant was provided the same questions on the survey and during the semi-structured interviews. The criterion of neutrality was achieved by reducing the researcher's bias when collecting participants' responses. A bona fide effort was made to ensure the researcher did not influence the participants' responses. The participants were made aware the researcher is a former English-Language Arts teacher in the district, former reading intervention teacher, dyslexia intervention teacher at Campus A, and current dyslexia teacher at Campus B. Although the researcher is a teacher on Campus B, the position is itinerant, and the researcher does not hold a supervisor position. The researcher did not share personal experiences as an English-Language Arts teacher, reading intervention teacher, dyslexia intervention teacher or any related personal and family background with the participants of the interviews.

According to Erlandson et al., (1993) and Guba and Lincoln (1989) establishing rigor and trustworthiness is important to evaluating the worth of research study. In order to indicate trustworthiness, a researcher must establish credibility, transferability, and

confirmability (Trochim, Donnelly, Arora, 2016). The results of qualitative research must be credible or believable from the perspective of the participants in the research to demonstrate credibility. The purpose of qualitative research is to gain a deeper understanding of the participants' experiences, interpretations, and perceptions of certain phenomenon (Trochim, et al., 2016). The credibility of a study can only be truly evaluated by the participants. To establish credibility in this study, the participants were asked to describe their own experiences and understandings regarding dyslexia. The credibility of the participants' responses was enhanced when the researchers offer the participants' feedback in relation to the data analysis and the recording of their responses. Participants should confirm the researcher's data analysis during data collection (Polit & Beck, 2017).

Trochim et al. (2016) state, "transferability refers to the degree to which the results of qualitative research can be generalized or transferred to other contexts or settings" (p. 49). According to Guba and Lincoln (1989) and Firestone (1993), transferability is primarily the responsibility of the researcher who must provide sufficient setting or contextual information in his or her study so that the reader can make the transfer. The researcher included detailed descriptions of the participants' demographic information, including race, gender, age, years of teaching, degree status, and previous teaching experience to enhance transferability (Trochim, et al., 2016). The researcher also provided enrollment data for the campuses in the large suburban school district in Southeast Texas to better describe the context of the study. Others may evaluate the similiairites and differences between their context and the context described in this study to determine transferability. The person who transfers the results to a

different context is responsible for judging the sensibility of the transfer (Trochim, et al., 2016). Specifically, others reviewing the findings of this study should analyze the experiences of English-language arts teachers.

Confirmability refers to the degree to which the results of a study can be confirmed or corroborated by others (Trochim, et al., 2016). Qualitative research assumes each researcher brings a unique point of view to the study. There are number strategies to enhance confirmability such as the researcher documenting the procedures for checking and rechecking the data throughout the study. Another strategy is to note and describe any instances that are contradictory to prior observations. Confirmability was established by analyzing the emerging themes, concepts, and relationships from the participants' oral responses to the open-ended questions. The researcher ensured data was not altered by transcribing the exact oral responses of the participants into a Microsoft Word document (Fasick, 1977).

The direct quotes from the participants' written and verbal responses to the open-ended, semi-structured interview questions was the data source in this qualitative study These questions revealed the participants' thoughts, experiences, understandings, and their perceptions regarding knowledge and professional development on recognizing characteristics of dyslexia in students.

Data Collection

Data collection, using in-depth, individual interviews, can explore the responses of participants and gather more and deeper information (Baxter & Jack, 2008; Rosenberg & Yates, 2007). Therefore, the researcher in this study used individual and in-person interviews with sixth through eighth grade English-Language Arts, general education

teachers to ask questions, which elicited in-depth responses. This phenomenological study collected data through in-person, individual, semi-structured interviews. Semi-structured interviews were appropriate to use because they afforded a more flexible format for interviews (Noor, 2008). Through the use of semi-structured interviews, the researcher had an opportunity to individualize the questions while still having a structure for approaching the same data collection (Noor, 2008). English-Language Arts teachers in grades six through eight at two campuses in a large suburban school district in Southeast Texas provided the data for this study. The researcher obtained approval from the school district to conduct the study before the data was collected. The completed Human Subjects and Institutional Review Board forms were submitted to the Houston Baptist University Office of Research and Sponsored Programs to obtain approval to conduct the study.

Ethical considerations for this study included concealing the identities of the participants and obtaining their permission. The consent form was included with the survey so that each participant understood the expectations before responding to the questions. The researcher minimized the potential for bias in the study by not intervening in the participants' communication unless there was a question. Moreover, the researcher controlled her facial expressions, tone of voice and body language so that participants' responses were not influenced by researcher bias. Survey and interview responses will be retained for seven years after completion of this study then destroyed.

Data was collected through two means: (a) survey containing demographic questions and multiple choice and dichotomous questions (b) individual interviews using semi-structured questions which allowed participants to expand on their knowledge and

professional development regarding dyslexia. The participants were notified through an

email invitation to participate in the study. The participants were instructed to complete

the electronic survey questions provided through Survey Monkey. At the end of the

survey, each teacher had an opportunity to volunteer to participate in one of the six

interviews that were conducted over the course of this study. The interviews were held on

each campus in a convenient and quiet location. The interviews allowed participants to

discuss in more detail their knowledge and professional development relating to dyslexia

and supports needed to effectively teach students with dyslexia. The interviews gave

participants an opportunity to share their understanding and perceptions of dyslexia as

well as their share personal experiences relating to dyslexia. Additionally, the individual

interview allowed the researcher to read body language and establish a more personal

relationship which gave further insight into the perceptions of the participants. The verbal

and written participant responses were documented and analyzed to describe the

participants' perceptions regarding their knowledge and professional development of

dyslexia on recognizing students with characteristics of dyslexia, as well as the

demographic information. Themes and patterns evolved from the interview responses to

help the researcher understand the perceptions, understandings, and awareness of the

participants regarding dyslexia.

Researcher Bias

In qualitative research, bias affects the validity and reliability of study findings

(Smith & Noble, 2014). According to Heath (1997), "researchers try to be clear about

their biases, presuppositions, and interpretations so that others (the stakeholders) can

decide what they think about it all" (p. 98). Researcher bias is an important factor in

qualitative research; therefore, the researcher used reflexivity to address the bias and provide a more impartial analysis. Reflection allows the interviewer to consider and speculate on the ways the interviewer-interviewee interaction may have been influenced by sources such as certain demographics or less obvious indicators such as cultural background, political orientation, or socio-economic status (Roller & Lavrakas, 2015). With the use of reflexivity, the researcher examined and acknowledged assumptions and preconceptions brought into the research (Milinki, 1999; Tong, Sainsbury, & Craig, 2007). The researcher was previously an English-Language Arts teacher in the school district, a reading intervention /dyslexia teacher at campus A, and currently a dyslexia teacher at campus B. For that reason, the researcher was careful not to insert individual feelings about personal experiences into the responses of the participants. The participants' responses were documented verbatim. The researcher analyzed the qualitative data by reviewing the participants' responses, which provided a better understanding of their perceptions. The researcher put aside personal biases and preconceptions and remained open-minded when collecting data for the study to maintain the integrity and credibility of the research. Only through this degree of awareness can a researcher maintain a low level of bias while collecting data.

Data Analysis

In this section, the researcher described the data analysis procedures used to analyze the following: (a) survey containing demographic questions and multiple choice and dichotomous questions (b) individual interviews using semi-structured questions which allowed participants to expand on their knowledge and professional development regarding dyslexia. Once the interviews were transcribed, the interviewee had an

opportunity to review the transcript for accuracy. The sixth through eighth grade English-Language Arts teacher responses to the survey and semi-structured interview questions were analyzed to address the three research questions to determine perceptions of English-Language Arts general education teachers in grades six through eight regarding their preparation and knowledge of dyslexia relating to recognizing students with characteristics of dyslexia.

Bogdan and Biklen (2007) stated, "analysis involves working with data, organizing them, breaking them into manageable units, synthesizing, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others" (p. 157). The verbal and written open-ended responses to the interview questions were transcribed and entered into the NVivo software program for documentation and coding. The researcher separated the responses by regarding other potential factors which, if appropriately addressed, increased the knowledge and professional development in recognizing students with characteristics of dyslexia in the general education classroom. The interview responses were placed in tables that separated the responses by themes, such as (a) pre-service or in-service training; (b) teacher knowledge of dyslexia; (c) misperceptions of dyslexia; (d)interventions for students with dyslexia); (e) services and resources for students with dyslexia; (f) characteristics of dyslexia. The data was analyzed, organized, and reorganized, searching for patterns and themes. The researcher then determined data to be re-categorized by comparing data themes and categories. Explicitly, the researcher coded the text to determine the perceptions of English-Language Arts general education teachers in grades

6-8 regarding their preparation and knowledge of dyslexia relating to recognizing students with characteristics of dyslexia.

Summary

The specific methodology for the study was presented in this chapter. The participants were purposefully selected based on teaching English-language arts in the general education setting. The details of the survey were described, which included demographic information and multiple choice and dichotomous questions. Data collection and analysis procedures were discussed for two means of data collection: (a) survey containing demographic questions and multiple choice and dichotomous questions and (b) individual interviews using semi-structured questions which allowed participants to expand on their knowledge and professional development regarding dyslexia. The findings of the study were detailed in Chapter IV.

Chapter IV

Findings

Introduction

The purpose of this phenomenological study was to describe the perceptions of English-Language Arts teachers in grades 6-8 regarding their preparation and knowledge of recognizing students with characteristics of dyslexia in the general education classroom. Students with dyslexia struggle with phonemic awareness, poor word decoding, and problems with verbal memory; they know the word but are unable to retrieve it (Brady & Moats, 1997). Driver Youth Trust (2012) found teachers did not receive training to provide appropriate instruction and support for struggling readers. Moreover, teachers received less training about how to identify and effectively teach children with dyslexia. The researcher selected the phenomenological approach to examine the specific problem within the setting of those involved (Creswell, 2013), studying teachers within the school setting. The role of the qualitative researcher was to study the phenomenon in the natural setting, attempting to interpret the experiences in relation to the meanings people bring to them (Denzin & Lincoln, 2005). This study was guided by the following three research questions:

1. What are the perceptions of English-language arts teachers in grades 6-8 regarding their current knowledge on recognizing students with characteristics of dyslexia in the general education classroom?

2. What are perceptions of English-language arts teachers in grades 6-8 regarding professional development on recognizing students with characteristics of dyslexia in the general education classroom?

3. What are perceptions of English-language arts teachers in grades 6-8 regarding recommendations for improving professional development on recognizing students with characteristics of dyslexia in the general education classroom?

Descriptions of the Participants and Their Backgrounds

Using the purposeful sampling method, the researcher recruited English-Language Arts teachers for grades six through eight in a large suburban district in Southeastern Texas from two campuses. Each of the participants met the following conditions: 1) working in a general education classroom, 2) employed at the approved campuses, and 3) taught English-Language Arts. Each of the 30 participants completed the modified Dyslexia Knowledge Survey and 6 participated in individual interviews. Each of the participants who completed the online questionnaire provided demographic information (biographical and professional characteristics), which is illustrated in Table 2. The gender composition of participants included 2 (6.67%) males and 28 (93.33%) females. Participants represented the following racial groups: 1 (3.33%) Black or African American and 29 (96.67%) White. Participants' ages ranged from 21 to 50 and above: 7 (23.33%) participants between the ages of 21 and 30 years old, 8 (26.67%) participants between the ages of 31 and 40 years old, 9 (30.00%) participants between the ages of 41 and 50 years old, 18 (39.13%) participants between the ages of 43 and 50 years old, and 6 (20.00%) participants aged 50 and older.

Participants' years of teaching experience ranged from 1 to more 21 years or more: 4 (14.29%) first year, 4 (14.29%) 2 – 5 years of experience, 10 (35.71%) 11 – 15 years of experience, 7 (25.00%) 16 – 20 years of experience, and 3 (10.71%) 21 or more years of experience (2 participants did not respond to this question). Participants' highest

educational attainment included Bachelor's and Master's degrees: 20 (66.67%) Bachelor's degrees and 10 (33.33%) Master's degrees. Participants indicated how they received their teaching certification: 9 (30.00%) through an alternative certification program and 21 (70.00%) through traditional certification process. Participants taught sixth, seventh, and eighth grades at the time they completed the survey: 12 (40.00%) sixth grade, 14 (46.67%) seventh grade, and 4 (13.33%) eighth grade. Participants taught between one and four or more grade levels: 6 (20.00%) one grade, 7 (23.33%) two grades, 5 (16.66%) three grades, and 9 (30.00%) four or more grades. Three (10.00%) participants did not respond to the question. Participants taught grades Kindergarten through twelfth. Participants previously taught grades Kindergarten through twelfth: 3 Kindergarten, 4 first grade, 5 second grade, 4 third grade, 7 fourth grade, 10 fifth grade, 14 sixth grade, 14 seventh grade, 16 eighth grade, 3 ninth grade, 2 tenth grade, 1 eleventh grade, and 2 twelfth grade (please note, multiple participants taught several grades previously). Participants were either unsure about the number of students they taught with dyslexia or responded with between 5 or fewer students and more than 30 students: 8 (26.67%) unsure, 4 (13.33%) 5 or fewer students, 6 (20.00%) 6 – 10 students, 1 (3.33%) 11 – 20 students, 7 (23.34%) 21 – 30 students, and 4 (13.33%) more than 30 students.

Table 2

Survey Participants' Demographic Descriptions

Demographics	Participants
Gender	
Male	2 (6.67%)
Female	28 (93.33%)
Race	
Black or African American	1 (3.33%)
White or Caucasian	29 (96.67%)
Age	
21 - 30	7 (23.33%)
31 - 40	8 (26.67%)
41 - 50	9 (30.00%)
50 and above	6 (20.00%)
Years of Experience	
First Year	4 (14.29%)
2 – 5 Years	4 (14.29%)
11 – 15 Years	10 (35.71%)
16 – 20 Years	7 (25.00%)
21+ Years	3 (10.71%)
Highest Degree Attainment	
Bachelor's Degree	20 (66.67%)
Master's Degree	10 (33.33%)
Certification Process	
Alternative	9 (30.00%)
Traditional	21 (70.00%)
Grade Taught During Study	
Sixth Grade	12 (40.00%)
Seventh Grade	14 (46.67%)
Eighth Grade	4 (13.33%)
Number of Grades Previously Taught	
1 Grade	6 (20.00%)
2 Grades	7 (23.33%)
3 Grades	5 (16.66%)
4 or More Grades	9 (30.00%)
No Response	3 (10.00%)

Demographics	Participants
Grades Previously Taught	
Kindergarten	3
First Grade	4
Second Grade	5
Third Grade	4
Fourth Grade	7
Fifth Grade	10
Sixth Grade	14
Seventh Grade	14
Eighth Grade	16
Ninth Grade	3
Tenth Grade	1
Eleventh Grade	2
Twelfth Grade	2
Number of Student with Dyslexia Taught	
Unsure	8 (26.67%)
5 or Less Students	4 (13.33%)
6 – 10 Students	6 (20.00%)
11 – 20 Students	1 (3.33%)
21 – 30 Students	7 (23.34%)
30 or More Students	4 (13.33%)

As previously stated, six participants completed both the online instrument and individual interviews. The following demographic information pertains to participants who were individually interviewed and is depicted in Table 3. Two (33.33%) of the participants identified as male and four (66.67%) were female. All of the 6 (100.00%) participants were white. One (16.66%) participant was between the ages of 21 and 30, 2 (33.33%) participants were between the ages of 21 and 30, 2 (33.33%) participants were between the ages of 31 and 40, 0 (0.00%) participants were between the ages of 41 and 50, and 3 (50.00%) were over the age of 50.

One (16.66%) participant taught between 2 and 5 years, 4 (66.67%) participants taught between 11 and 15 years, 0 (0.00%) participants taught between 16 and 20 years,

and 1 (16.66%) participant taught 21 years or more. Five of the participants (83.34%) earned a Bachelor's degree and one (16.66%) earned a Master's degree. Two (33.33%) participants completed an alternative certification program and 4 (66.67%) did not complete an alternative certification program. Participants taught the following grades: 1 (16.66%) taught sixth grade, 2 (33.33%) taught seventh grade, and 3 (50.01%) taught eighth grade. Participants previously taught the following grades (please note some participants taught more than one grade previously): 1 taught Pre-Kindergarten, 2 taught Kindergarten, 1 taught first grade, 3 taught second grade, 1 taught third grade, 2 taught fourth grade, 3 taught fifth grade, three taught sixth grade, four taught seventh grade, five taught eighth grade, one taught ninth grade, 1 taught tenth grade, and 1 taught eleventh grade. Participants possessed the following certifications (please note some participants earned more than one certification): 1 certified in Business 9 – 12, 5 certified in EC Generalist 4 – 8, 3 certified in ELA 1 – 12, 1 certified in Elementary Education, 1 certified in English 6 – 12, 1 certified in ESL, 1 certified in Pre-K – K, 2 certified in Reading, 1 certified in Social Studies, and 1 certified in Special Education. Participants taught between 5 or fewer students to more than 30 students with dyslexia: 1 (16.66%) 5 or fewer students, 1 (16.66%) 6 – 10 students, 2 (33.34%) 11 – 20 students, 0 (0.00%) 21 – 30 students, and 2 33.34%) more than 30 students.

Table 3

Individual Interview Participants' Demographic Descriptions

Demographics	Participants
Gender	
Male	2 (33.33%)
Female	4 (66.67%)
Race	
White or Caucasian	6 (0.00%)
Age	
21 - 30	1 (16.66%)
31 - 40	2 (33.33%)
41 - 50	0 (30.00%)
50 and above	3 (50.00%)
Years of Experience	
2 – 5 Years	1 (16.66%)
11 – 15 Years	4 (66.67%)
16 – 20 Years	0 (00.00%)
21+ Years	1 (16.66%)
Highest Degree Attainment	
Bachelor's Degree	2 (33.33%)
Master's Degree	4 (66.67%)
Certification Process	
Alternative	2 (33.33%)
Traditional	4 (66.67%)
Grade Taught During Study	
Sixth Grade	1 (16.66%)
Seventh Grade	2 (33.33%)
Eighth Grade	3 (50.01%)
Grades Previously Taught	
Pre-Kindergarten	1
Kindergarten	2
First Grade	1
Second Grade	3
Third Grade	1
Fourth Grade	2
Fifth Grade	3

Demographics	Participants
Sixth Grade	3
Seventh Grade	4
Eighth Grade	5
Ninth Grade	1
Tenth Grade	1
Eleventh Grade	1
Certifications Earned	
Business: 9 - 12	1
EC Generalist: 4 - 8	5
ELA: 1 - 8	3
Elementary Education	1
English: 6 - 12	1
ESL	1
Pre-Kindergarten/Kindergarten	3
Reading	2
Social Studies	1
SPED	1
Number of Student with Dyslexia Taught	
5 or Less Students	1 (16.66%)
6 – 10 Students	1 (16.66%)
11 – 20 Students	2 (33.34%)
21 – 30 Students	0 (0.00%)
30 or More Students	2 (33.34%)

Research Question One

Participants answered one survey question (survey question 10) applicable to

Research Question One: *What are the perceptions of English-language arts teachers in*

grades 6-8 regarding their current knowledge on recognizing students with

characteristics of dyslexia in the general education classroom? The interview questions

captured information regarding English-Language Arts teachers in grades six through

eight current knowledge on recognizing students with characteristics of dyslexia in the

general education classroom. When asked what dyslexia refers to, 3 (10.0%) responded a

difficulty with written language; 3 (10.0%) responded a difficulty learning the sequences

of letters, syllable, or number; and 24 (80.0%) responded both a difficulty with letter and/or number reversals and a difficulty with written language.

Three interview questions (Question 1, Question 2, and Question 5) related to participants' knowledge of recognizing student with characteristics of dyslexia in the general education classroom. Overall, participants' described characteristics of dyslexia as difficulties with reading or decoding languages. The results of the interview transcripts revealed one theme: reading. Reading was supported by three categories: decoding, learning, and difficulties/challenges. Participant 1 indicated, "students have a tough time reading and processing what they're reading". Participant 1 also shared how the perception changed over time as a result of additional training. Participants 2 and 3 mentioned students mixing up letters and words when describing characteristics of dyslexia. Participant 4 mentioned the students feeling uncomfortable reading and comprehension challenges. Participant 5 stated, "they have a difficult time decoding the words because the word doesn't look. On paper, when they look on it on paper, something changes in their mind, and they don't see it the way it's written on paper".

Summary of Findings for Research Question One

A summary of the findings for Research Question One are provided in this section. The summary includes an overview of participants' perceptions of current knowledge on recognizing students with characteristics of dyslexia in general education classrooms. One theme, reading, was supported by three categories 1) decoding, 2) learning, and 3) difficulties/challenges. All of the participants associated dyslexia with reading impairments. Responses to survey question 10 supported each of the themes associated with this research question: a difficulty with written language; a difficulty

learning the sequences of letters, syllable, or number; and both a difficulty with letter and/or number reversals and a difficulty with written language.

Research Question Two

Participants answered six survey questions applicable to Research Question Two: *What are perceptions of English-language arts teachers in grades 6-8 regarding professional development on recognizing students with characteristics of dyslexia in the general education classroom?* Participants answered six survey questions applicable to Research Question Two. Participants responded to the following Likert Scale questions pertaining to the Research Question Two electronically: survey question 11, survey question 12, survey question 13, survey question 14, survey question 15, and survey question 16. The opinionnaire captured information regarding professional development opportunities available to recognize students exhibiting dyslexia characteristics. Participants used the following phrases to describe difficulties students with dyslexia encounter: 2 (6.67%) text level only; 3 (10.0%) word level only; and 25 (83.3%) all of the above which included text, sentence, and word level challenges. When asked if dyslexia is not heritable, 2 (6.67%) responded true, 18 (60.00%) responded false, and 10 (33.33%) responded I don't know. All of the participants, 30 (100.00%) responded true when asked if difficulties with fluency and automaticity were common in dyslexia. Participants responded in various ways when asked if a person who is dyslexic is more likely to have ADHD, dyspraxia and/or specific language impairments than a non-dyslexic person: 2 (6.90%) responded true, 5 (17.24%) responded false, and 10 (34.48%) responded I don't know. Sixteen (53.33%) responded true, 6 (20.00%) responded false, and 8 (26.67%) responded I don't know when asked if a dyslexic person

was likely to have an excellent auditory working memory. Participants were asked if a difficulty with phonological coding the core deficit in dyslexia was: 14 (46.67%) responded true, 5 (16.67%) responded false, and 11 (36.67%) responded I don't know. These collective responses indicate how participants perceived and identified students with dyslexia.

Participants who were interviewed also shared their perceptions about training received about students with dyslexia and how they learned to recognize characteristics of the disability. Training was the overall theme and three categories supported it: classroom, accommodations, and parents. Participants welcome training because they wanted to be able to provide the best support and instruction to students. Even though teachers wanted to receive training, participants also expressed frustration with conflicting methods and the lack of interventions discussed. They also shared concerns about training only occurring at the beginning of the year and not receiving follow up guidance. Many participants indicated they learned to serve students with dyslexia in the classroom or by parents. Participants also discussed accommodations and the need to understand how to apply the rules, especially in a general education classroom. Participant 1 stated, "So I've attended multiple trainings, they typically change over the years. One, one belief system is one way, one year and then the following year, new research shows something differently."

They also shared concerns about training only occurring at the beginning of the year and not receiving follow up guidance. Many participants indicated they learned to serve students with dyslexia in the classroom or by parents. Participant 2 stated, "At beginning of this year, we were given a training by moms of students that have dyslexia."

Participant 5 shared, "We had one this year. And that's the only one that we've actually ever had." Participants also discussed accommodations and the need to understand how to apply the rules, especially in a general education classroom.

Summary of Findings for Research Question Two

Based on participants' responses about characteristics of dyslexic students, it appeared as if they recognized the attributes and understood how to serve students. The participants did not mention having dyslexic students in the general education classroom as a burden or obstacle. Overall, participants welcomed training about the subject and mentioned it mainly occurred at the beginning of the year. Formal and informal training occurred: participants received formal training at the beginning of the year through professional development workshops and throughout the year in an informal context by parents of dyslexic students. Parents often shared techniques that were successful for their child, which supplemented formal training that lacked specific techniques.

Research Question Three

The summary of the findings pertaining to Research Question Three: *What are perceptions of English-language arts teachers in grades 6-8 regarding recommendations for improving professional development on recognizing students with characteristics of dyslexia in the general education classroom?* are included in this section. The summary of the findings pertaining to Research Question Three are included in this section. Participants answered one survey question applicable to Research Question Three. The responses to one interview question was applicable to recommendations for improving professional development for English-Language Arts teachers related to dyslexia. When asked if multi-sensory teaching methods were considered to be particularly helpful to

dyslexic pupils 27 (90.00%) responded true, 1 (3.33%) responded false, and 2 (6.67%) responded I don't know.

Interview question 4 applied to research question 3. Participants mentioned the need and interest for professional development in the area of dyslexia. The overall theme, support, included two categories (professional development and designated person). Participants mentioned the need for support and training. Support was described as professional development and a designated person within the school or district to ask questions and seek advice about special education and/or dyslexic students. Participant 1 stated:

> I think there needs to be somebody that you can go to, a specialist or some kind, because there's times when things just don't seem to add up. And you just need clarification, you need help you need more guidance into is this just a learning disability? Is this another issue? Or is this possibly dyslexia?

Professional development was described as, "understanding more about the techniques and tools that the students are given," by Participant 2. Learning new strategies to serve students with dyslexia was a priority to Participant 4.

Summary of Findings for Research Question Three

This section includes a summary of the findings for Research Question Three. Similar to the findings for the previous Research Question, participants mentioned the need and interest in professional development training. Teachers wanted support to help them be more effective with their jobs and better support students. Participants described their ideal support as professional development and a designated person to help them

develop techniques to serve students with dyslexia and ensure compliance with special education mandates.

Summary

An overview of the findings relative to each Research Question were provided in this chapter. The findings were based on data collected from the electronic survey and transcripts from individual interviews. Three themes emerged for each research question: reading, training, and support. The corresponding categories, which supported each research question included the following: decoding, learning, and difficulties/challenges for Research Question 1; classroom, accommodations, and parents for Research Question 2; and professional development and designated person for Research Question 3.

The next and final chapter will include a discussion of the results, implications, recommendations, and conclusions. The discussion occurred in context of previously conducted research in the field and the findings of this study. Implications for policy and practice and recommendations for future research are also forthcoming in Chapter V.

CHAPTER V

DISCUSSION, IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSIONS

Discussion

The purpose of this phenomenological study was to describe the perceptions of English-Language Arts teachers in grades six through eight regarding their preparation and knowledge on recognizing students with characteristics of dyslexia in the general education classroom. Data was collected from participants who completed an electronic survey (N = 30) and those to partook in individual interviews (N = 6). The findings of this study were informed by the following research questions.

1. What are the perceptions of English-language arts teachers in grades 6-8 regarding their current knowledge on recognizing students with characteristics of dyslexia in the general education classroom?

2. What are perceptions of English-language arts teachers in grades 6-8 regarding professional development on recognizing students with characteristics of dyslexia in the general education classroom?

3. What are perceptions of English-language arts teachers in grades 6-8 regarding recommendations for improving professional development on recognizing students with characteristics of dyslexia in the general education classroom?

Prior to conducting this study, the researcher completed CITI Certification (Appendix A). The researcher submitted a request and gained approval (Appendix B; Appendix G) to conduct this study from the campus IRB Office and the school district. The participants for this study were purposefully selected from the populations of English-Language Arts teachers in grades six through eight in a large suburban district in

Southeast Texas on two separate campuses. The purposeful selection process was conducted by choosing English-Language Arts general education teachers who taught grades six through eight to participate in the study based on if they could be contacted and elected to participate or not. "The method of sampling in analytic induction is purposeful sampling. The researcher may choose particular subjects to include because they are believed to facilitate the expansion of the developing theory" (Bogdan & Biklen, 2003, p. 65). Purposeful sampling method allowed the researcher, "to develop a deeper understanding of the phenomena studied. A related purpose often is to discover or test theories" (Gall et al., 2006, p. 165). The setting for this study was two public junior high schools in a large suburban school district in southeast Texas. For this research study, the schools were identified as Campus A and Campus B.

The criteria for selection included certified teachers: (a) who were working in a general education classroom, (b) who were employed by Campus A or Campus B, and (c) taught English-language arts. The participants were notified by email invitation to participate in the study. The participants were instructed to complete the consent form before completing the electronic survey (Appendix D) (Gwernan-Jones & Burden, 2010) provided through Survey Monkey, then submit the survey. Participants had an opportunity at the end of the electronic survey to self-select to participate in an interview (Appendix E). Interview participants were chosen by stratification from the self-selected teachers. All potential interview participants met the criteria by being part of the sample population. Three participants from each campus were invited to participate in an individual interview session where they were allowed to expand on their professional development and knowledge of dyslexia by answering semi-structured interview

questions (Appendix C). Each participant completed the informed consent to interview form (Appendix F). The interviews were held on each campus. The researcher contacted each participant by email to provide informed consent, location, dates and times as responses were received.

The oral and written participant responses were documented and analyzed to describe English-language arts teachers' perceptions of professional development and knowledge related to recognizing characteristics of dyslexia in students. Themes and patterns evolved from responses to survey questions as well as the responses to the interview questions which helped the researcher understand the perceptions of the participants.

Conceptual Framework

The conceptual framework for this research study was based on the philosophy of Samuel Orton and Anna Gillingham which applies direct instruction to teach systematic, explicit, multisensory structured language as an effective intervention program for teaching phonics to struggling readers (IDA, 2000). The Orton-Gillingham approach provides multisensory lessons that include using visual, auditory, and kinesthetic brain pathways to teach reading and spelling. (IDA, 2000). According to the International Dyslexia Association (2000), the Orton-Gillingham approach teaches: (a) a well-planned, logical sequence; (b) incremental because each lesson builds upon the previous lesson; (c) cumulative by including constant and consistent review of previously taught concepts; (d) individualized to meet the individual needs of each student; (e) based on the simplification of teaching letters and letter combinations known as phonograms; and (f) provides explicit instruction by providing students precisely what they need in a clear and

straight forward method. Struggling readers require instruction that is systematic, explicit, and connected to students' current knowledge and experiences (Iris Center, 2016).

Other conceptual frameworks discussed include phonological processing deficits and non-phonological deficits, such as visual processing deficits, auditory processing issues, and working memory deficits. Adults and children had difficulties processing the phonological level of language (Birch & Chase, 2004). Individuals with dyslexia demonstrate reduced phonological awareness and are slower and less accurate than typical readers at phonological coding (Birch, & Chase, 2004.) The prevalence of the phonological processing deficit in dyslexia, which led a number of researchers to conclude it is the primary deficit, is considered the defining characteristic of dyslexia (Shaywitz, 1996; Snowling, 1998; Stanovich & Siegel, 1994).

Demographic Information

Each of the 30 participants completed the electronic survey. Six of the 30 participants expressed interest in agreeing to individual interviews. Each of the participants met the following conditions: 1) working in a general education classroom, 2) employed at the approved campuses, and 3) taught English-Language Arts. Each of the 30 participants completed the modified Dyslexia Knowledge Survey and 6 participated in individual interviews. Each of the participants who completed the online questionnaire provided demographic information (biographical and professional characteristics), which is illustrated in Table 2. The gender composition of participants included 2 (6.67%) males and 28 (93.33%) females. Participants represented the following racial groups: 1 (3.33%) Black or African American and 29 (96.67%) White. Participants' ages ranged from 21 to

50 and above: 7 (23.33%) participants between the ages of 21 and 30 years old, 8

(26.67%) participants between the ages of 31 and 40 years old, 9 (30.00%) participants

between the ages of 41 and 50 years old, 18 (39.13%) participants between the ages of 43

and 50 years old, and 6 (20.00%) participants aged 50 and older.

Participants' years of teaching experience ranged from 1 to more 21 years or

more: 4 (14.29%) first year, 4 (14.29%) 2 – 5 years of experience, 10 (35.71%) 11 – 15

years of experience, 7 (25.00%) 16 – 20 years of experience, and 3 (10.71%) 21 or more

years of experience (2 participants did not respond to this question). Participants' highest

educational attainment included Bachelor's and Master's degrees: 20 (66.67%)

Bachelor's degrees and 10 (33.33%) Master's degrees. Participants indicated how they

received their teaching certification: 9 (30.00%) through an alternative certification

program and 21 (70.00%) through traditional certification process. Participants taught

sixth, seventh, and eighth grades at the time they completed the survey: 12 (40.00%)

sixth grade, 14 (46.67%) seventh grade, and 4 (13.33%) eighth grade. Participants taught

between one and four or more grade levels: 6 (20.00%) one grade, 7 (23.33%) two

grades, 5 (16.66%) three grades, and 9 (30.00%) four or more grades. Three (10.00%)

participants did not respond to the question. Participants taught grades Kindergarten

through twelfth. Participants previously taught grades Kindergarten through twelfth: 3

Kindergarten, 4 first grade, 5 second grade, 4 third grade, 7 fourth grade, 10 fifth grade,

14 sixth grade, 14 seventh grade, 16 eighth grade, 3 ninth grade, 2 tenth grade, 1 eleventh

grade, and 2 twelfth grade (please note, multiple participants taught several grades

previously). Participants were either unsure about the number of students they taught

with dyslexia or responded with between 5 or fewer students and more than 30 students:

8 (26.67%) unsure, 4 (13.33%) 5 or fewer students, 6 (20.00%) 6 – 10 students, 1

(3.33%) 11 – 20 students, 7 (23.34%) 21 – 30 students, and 4 (13.33%) more than 30

students.

As previously stated, six participants completed both the online instrument and

individual interviews. The following demographic information pertains to participants

who were individually interviewed and is depicted in Table 3. Two (33.33%) of the

participants identified as male and four (66.67%) were female. All of the 6 (100.00%)

participants were white. One (16.66%) participant was between the ages of 21 and 30, 2

(33.33%) participants were between the ages of 21 and 30, 2 (33.33%) participants were

between the ages of 31 and 40, 0 (0.00%) participants were between the ages of 41 and

50, and 3 (50.00%) were over the age of 50.

One (16.66%) participant taught between 2 and 5 years, 4 (66.67%) participants

taught between 11 and 15 years, 0 (0.00%) participants taught between 16 and 20 years,

and 1 (16.66%) participant taught 21 years or more. Five of the participants (83.34%) of

participants earned a Bachelor's degree and one (16.66%) earned a Master's degree. Two

(33.33%) participants completed in alternative certification program and 4 (66.67%) did

not complete an alternative certification program. Participants taught the following

grades: 1 (16.66%) taught sixth grade, 2 (33.33%) taught seventh grade, and 3 (50.01%)

taught eighth grade. Participants previously taught the following grades (please note

some participants taught more than one grade previously): 1 taught Pre-Kindergarten, 2

taught Kindergarten, 1 taught first grade, 3 taught second grade, 1 taught third grade, 2

taught fourth grade, 3 taught fifth grade, three taught sixth grade, four taught seventh

grade, five taught eighth grade, one taught ninth grade, 1 taught tenth grade, and 1 taught

eleventh grade. Participants possessed the following certifications (please note some participants earned more than one certification): 1 certified in Business 9 – 12, 5 certified in EC Generalist 4 – 8, 3 certified in ELA 1 – 12, 1 certified in Elementary Education, 1 certified in English 6 – 12, 1 certified in ESL, 1 certified in Pre-K – K, 2 certified in Reading, 1 certified in Social Studies, and 1 certified in Special Education. Participants taught between 5 or fewer students to more than 30 students with dyslexia: 1 (16.66%) 5 or fewer students, 1 (16.66%) 6 – 10 students, 2 (33.34%) 11 – 20 students, 0 (0.00%) 21 – 30 students, and 2 33.34%) more than 30 students.

<div align="center">Research Question One</div>

Participants' responses were used to determine themes and categories applicable to Research Question One: *What are the perceptions of English-language arts teachers in grades 6-8 regarding their current knowledge on recognizing students with characteristics of dyslexia in the general education classroom*? The reading theme was supported by three categories: decoding, learning, and difficulties/challenges.

Reading Theme

The reading theme was described by how students with dyslexia interpret words and how participants defined or described the disability. Each of the interview participants mentioned reading when describing their current knowledge of dyslexia characteristics. Participants' descriptions of dyslexia were consistent with the work of Ellis (2016) who described how people with the disability processed written language.

Decoding Category. Participants described dyslexia in terms of decoding words and language. Participant 3 stated:

I guess, the most like, stereotypical is like, letters look backwards, or different

things like that. But it's more of a, a lack of, from my understanding ability to

look at a word and decode it in the same way that when, when we read we don't

really look at every letter of the word, we more look at the entire word, and it just

kind of snaps dyslexia as a sort of a disconnect there that doesn't allow that

connection to happen and words end up in end up being decoded the wrong way-

incorrectly.

Participants' responses to the decoding them were supported by the work of Facoetti et

al. (2010) who studied other deficits associated with dyslexia. The authors determined

dyslexia also impacts phonological decoding and cued detection tasks.

Learning Category. In addition to challenges with reading, participants

mentioned the how having dyslexia impacted learning in general for students. Students'

reading barriers made it difficult to focus the content for other subjects. Students'

discomfort with reading contributed to their anxiety with other subjects, especially those

that required reading. Participant 1 stated, "my definition of dyslexia would be when a

student's reading is truly impacting their learning". Students diagnosed with dyslexia

often have difficulties in other subjects. Their performance in other subjects often leads

parents and teachers to request testing and the dyslexia diagnosis results (Reid, 2016).

Difficulties/Challenges Category. Participants described students with dyslexia

as difficulty with written language (N = 3; 10.00%); difficulties learning the sequences of

letters, syllables, or numbers (N = 3; 10.00%); and difficulties with both aforementioned

items (N = 24; 80.00%). Pumfrey and Reason (2013) described these challenges with

dyslexia in more detail.

The individual interview participant responses pertaining to this research question are provided below.

RESEARCH QUESTION ONE: What are the perceptions of English-language arts teachers in grades 6-8 regarding their current knowledge on recognizing students with characteristics of dyslexia in the general education classroom?

INTERVIEW QUESTION 1: Please tell me what you know about children with dyslexia.

<u>**Participant 1**</u>

My understanding of dyslexia would be for your students have a tough time reading and processing what they're reading.

My understanding that processing what they're reading, sometimes, it's hard because they're just having to decode all the words. So actually, the actual reading is so hard that is preventing them from always being able to focus on the deeper levels of the assignment.

<u>**Participant 2**</u>

That they have, for lack of better words, mix up when reading words, letters are seen differently.

<u>**Participant 3**</u>

That's a big question. My understanding is that dyslexia is a, oh gosh, I don't know if disorder is the right word, but it affects the way that a child or a person perceives written language. It can sometimes I guess, the most like, stereotypical is like, letters look backwards, or different things like that. But it's more of a, a lack of, from my understanding ability to look at a word and decode it in the same way that when, when we read we don't really look at every letter of the word, we more look at the entire word, and it just kind of snaps dyslexia as a sort of a disconnect there that doesn't allow that connection to happen and words end up in end up being decoded the wrong way- incorrectly.

<u>**Participant 4**</u>

Dyslexia makes it difficult for children to read. It makes the child feel uncomfortable, Less than.

I feel like the child has to work extra hard just to comprehend what the other children can comprehend and one, you know, in a shorter amount of time. I guess if that makes sense, I'm sorry, that might not make sense.

I also feel like with work, they can be just, I mean with, not like work ethic, but like, finding ways to deal with it, can help them be help them feel successful. And actually, be successful as far as with their grades, since we deal with grades.

<u>**Participant 5**</u>

That they have a difficult time decoding the words because the word doesn't look. On paper, when they look on it on paper, something changes in their mind, and they don't see it the way it's written on paper. So, it's scrambles the words up, inverse the letters. So, it's a process that's going wrong in their brain.

Participant 6

Children with dyslexia have a difficulty with reading and it does not always involve reversals of letters, and things like that.

It's a process and type of processing that does not allow them to get the information and correctly classified so they can retrieve it.

INTERVIEW QUESTION 2: What is your definition of dyslexia?
Participant 1

My definition of dyslexia would be when a student's reading is truly impacting their learning.

Being able to read words in a concise manner, it impacts their reading.
Participant 2

Students who have a lower comprehension in reading due to a
transfer and letter order.
Participant 3

Dyslexia is a condition that causes a difficulty in decoding written language.
Participant 4

I would say my definition is misrepresentation of letters and their order.
Participant 5

My definition, In the simplest form, difficulty to read due to transcribing. I don't know.
Participant 6

Someone who has a processing deficiency in reading.

INTERVIEW QUESTION 5: Please describe how your teaching experiences have developed your attitude about dyslexia.
Participant 1

So, when I first started teaching, I thought it was strictly like the reversal of numbers, and letters. And then over the course of the trainings in the years, that, that it does go much deeper than just that.

So, there have been students that I look back in the past. And I think now looking back at what I know, now, I would have known that then I definitely would have pursued dyslexia for them further. I definitely see students now that's completely different from my belief system in the very beginning that I know now is definitely dyslexia.
Participant 2

I feel like it's a lot more common than what I thought. And that really, each student with dyslexia needs to be seen as an individual student, because even within the diagnosis of dyslexia there seems to be multiple levels. And students need different levels of support and different types of support. And so just seeing each one of those students as needing an individual plan to be successful.
Participant 3

This might sound kind of bad. Originally, maybe not originally, but kind of growing up and being in school with other students that had dyslexia. I felt like it

was a, I hate to say, like a shield to hide behind. That was like a dude, just get over it and learn to read. Like, you're just, you're just slow, you know, things like that. And, and I think that has definitely changed as I learned more about it and learned that it's an actual thing. And then, with still a bit of skepticism in terms of like over diagnosis, or things like that. But then after sitting in meetings with like, where they're establishing the dyslexia and seeing the sheer amount of testing and stuff, it's like, oh, not if these kids are identified as dyslexic, there is a serious problem here that we that we need to do everything that we can to accommodate. So, it has really grown from, like I said, it's something that you hear about all the time. But until I really had the experience with a specific students and meetings with specific students and having, like I said, that paperwork on the specific student that I was able to go, oh, my goodness, this is a real disconnect. They are really not on a level playing field. And I mean, that's kind of the goal of accommodations, things like that, is to get everybody on that level playing field. And so, it's kind of evolved over time, the more I've learned about it, the more I've been "oh man this is, yeah, it's not just get over it."

Participant 4

I've always known. Like, I have a really close friend, her daughter has had dyslexia or has it, and I've known how hard it is to understand what you read, and how hard it is to read it.

But yet, I have seen her develop ways that help her figure out how to understand it and work hard. Okay. So that's one way. But then, you know, I feel like there's such different levels of it to that I do have some misconceptions about it. And I just want my Me Myself, I would want as much training as I could, because I feel like it would be very difficult in the classroom. And I think that's hard for students, and I don't want them to feel that way in my room. I want them to feel like I will do whatever I can, whatever I can to help them.

Participant 5

I know that I had a student several years ago, when I was doing strategic reading. And I, I was able to tell from doing reading records, or running records with him, how it affected him. Because in the junior high level, we don't really make the kids read out loud. And there's some kids, I know that they don't like to read out loud, and they'll come tell you, so we don't want to put them in that position. So, you know, they can actually deny. So actually, having to do a running record on a student that was that, you know, at that time, potentially, it wasn't confirmed. I mean he wasn't diagnosed, but I did paperwork to help get him tested and he ended up being. But just to actually to see it live. That was interesting to see it live. You know, that was the first student. Normally they're diagnosed, and then they come into my classroom, so I know, they are. And you know to handle them different. But to see somebody that was undiagnosed. To see the difficulty that they were having without any support from the dyslexia teacher - to see that. He was a seventh grader - Just to have fallen through the cracks.

Participant 6

More aware, I think. More empathetic to, you know, that they're not going to just get it right away, that they're going to need some form of support.

Research Question Two

Participants' responses were used to determine themes and categories applicable to Research Question Two: *What are perceptions of English-language arts teachers in grades 6-8 regarding professional development on recognizing students with characteristics of dyslexia in the general education classroom?* The training theme was supported by three categories: classroom, accommodations, and parents.

Training Theme

Even though participants had mixed reviews about if dyslexia were heritable, each of the participants mentioned receiving professional development training related to dyslexia. Participants also reported mixed reviews about other traits associated with dyslexia. The types of formal and informal training were also discussed. Peterson and Pennington (2015) proposed dyslexia if both genetic and environmental. Hornsby (2011) studied the importance of providing teachers with training to serve students with dyslexia.

Classroom Category. Three participants mentioned receiving dyslexia training during the fall or before school began. Participant 4 stated training, which allowed teachers to understand how dyslexic student felt and processed information was most beneficial. Best practices in training teachers and serving students with dyslexia included recognizing early warning signs, parental/caregiver involvement in the educational process, understanding testing results, educational law, and helping students cope with their disability (Hornsby, 2011).

Accommodations Category. Participants also expressed interest in how to apply accommodations in a general education classroom. Dyslexia is frequently used as an

example for using accommodations. Participant 3 stated, "Anytime there's been a course on accommodations or on accessibility, things like that dyslexia is always one of the first ones that they use as an example," and teachers are prepared to modify their instructional techniques to serve these students. Participant 5 discussed allowing dyslexic students to remain in traditional classrooms and pulling them out for services. Various schools of thought exist about how to accommodate students with dyslexia: all special education instruction, immersion classrooms, pull out of classes, extra time, and reading aloud (Shaywitz & Shaywitz, 2017).

Parents Category. Participants mentioned parents as a valuable source of training and feedback when teaching students with dyslexia. Participant 2 described parental training with, "we were given a training by moms of students that have dyslexia. And I think it kind of, more helped us understand how a dyslexia student felt versus kind of tips or techniques to implement."

> We had some PTA moms come in they gave us little worksheets. And they tried to let us see it through the eyes of a dyslexia child, dyslexic child. And I was very grateful for that, because I had my own thoughts of what it was. But this helped me to really understand how hard it is for them. But that is the only training I've really had (Participant 4).

Reid (2016) discussed the importance and value of engaging parents of dyslexic students. He also contended schools and districts should include parents and caregivers in the process of training teachers (Reid, 2016).

The individual interview participant responses pertaining to this research question are provided below.

RESEARCH QUESTION 2: What are perceptions of English-language arts teachers in grades 6-8 regarding professional development on recognizing students with characteristics of dyslexia in the general education classroom?

INTERVIEW QUESTION 3: Please describe any preservice or in-service training you have received to prepare you to teach students with dyslexia.
Participant 1
Talk 15 years, so I've attended multiple trainings, they typically change over the years. One, one belief system is one way, one year and then the following year, new research shows something differently.
Participant 2
At beginning of this year, we were given a training by moms of students that have dyslexia. And I think it kind of, more helped us understand how a dyslexia student felt versus kind of tips or techniques to implement.
And it just kind of showed us how they see things backwards compared to the way that we do. So, it's more understanding what life is like as a student with dyslexia.
I've also had a training on just understanding more of what dyslexia is, what are warning signs when you see different things that a student does, what to look for when identifying a student with dyslexia.
Participant 3
So, dyslexia is something that has been covered in numerous classes when I was in college. it's one of the more standard ones that, like when you when they list, when you learn about 504, or not necessarily 504, but when you learn about accommodations of any kind, dyslexia is normally one of the first things that they gravitate towards as a, you will have to have accommodations for dyslexia. And, and it's been the same way with professional learning as well. Anytime there's been a course on accommodations or on accessibility, things like that dyslexia is always one of the first ones that they use as an example. I guess, since it's something that's prevalent or common that they just use that as an example of, okay, so for a dyslexic student, things like read aloud or things like that are sort of what my experience has been as dyslexia is kind of the go to example of, you're going to need accommodations, or you're going to need modifications.
Participant 4
I think it was the beginning of this year, or maybe last year, but I think it was this year, and we have some PTA moms come in they gave us little worksheets. And they tried to let us see it through the eyes of a dyslexia child, dyslexic child. And I was very grateful for that, because I had my own thoughts of what it was. But this helped me to really understand how hard it is for them. But that is the only training I've really had.
Participant 5
We had one this year. And that's the only one that we've actually ever had. Okay. She talked about that she was doing the pull out because she had many hours, she has to pulls different kids. that they can sometimes overlays can help a child with overlays have to come from the student themselves. The district doesn't provide

them an overlay. The overlays vary by color due to due to the kids' needs, that they did have an app that they could get books online, through her service. I can't remember anything else.

<u>Participant 6</u>

All of my reading coursework, back in the day, specifically addressed dyslexia. I have 40 hours of reading, so I can get my certificate and pass the test on that. Various district trainings on dyslexia. Most recently this last fall.

Research Question Three

Participants' responses were used to determine themes and categories applicable to Research Question Three: *What are perceptions of English-language arts teachers in grades 6-8 regarding recommendations for improving professional development on recognizing students with characteristics of dyslexia in the general education classroom?* The support theme was supported by two categories: professional development and designated person.

Support Theme

Participants expressed interest in receiving support as teaching to help them better serve students with dyslexia. Participant 1 indicated why support was important:

I think they probably need an awareness of exactly what is going on because the kids do mask so well. And you know, not just looking at the way that they're reading and the way that they're orally able to work with their conferences, because Katy is big on conferences, you know, reading, they may be able to orally tell you what's going on. But if there's a mismatch between their test scores and you know, just the general knowledge. Just kind of investigate.

Participant 5 shared frustrations and suggestions about the support systems available with:

I reached out to the dyslexia teacher to see what it is about, what is this, I can't,

you know, I don't understand. There's no support. I don't think any teacher gets

any anything. I would like to, I would think, to have teachers even watch a video.

So, here is a dyslexia teacher working with a student. Here's the strategies, this is

what the strategies look like. This is what the student is doing. Not only just

defining it, but show strategies that that dyslexia teacher is using, so that can be

modeled by the regular teacher.

Pumfrey and Reason (2013) discussed the various learning difficulties of dyslexic

students (within reading and other subjects), how teachers can help students overcome

their challenges, the social and contextual context of learning (for students and teachers),

best practices in special education, and developing partnerships with educators to serve

students.

      Professional Development Category. A large percent (N = 27; 90.00%) of

participants indicated multi-sensory teaching methods were helpful for dyslexic students.

Two participants expressed their interest in more professional development offerings and

specific training about working with dyslexic students. Participant 3 stated, "what has

worked in the past, what has worked for other teachers, what has been going on? I think,

as a teacher, the more information we can have the better we can serve students".

Participant 4 shared, "personally, I feel like teachers need to have a professional

development that offer strategies, different strategies, because one strategy isn't going to

fit every child". The need for professional development for teachers, which includes a

wide range of interventions was discussed by several scholars (Hornsby, 2011; Reed,

2011). Teachers should be aware of a wide range of interventions because no two

dyslexic students are alike (Ellis, 2016).

Designated Person Category. Participant expressed an interest in having a

designated person to discuss special education laws and mandates and serving their

students. While most schools or districts employ special education professionals and

counselors, participants desired additional support in this area. Participant 1 stated:

> I think there needs to be somebody that you can go to, a specialist or some kind,
>
> because there's times when things just don't seem to add up. And you just need
>
> clarification, you need help you need more guidance into is this just a learning
>
> disability? Is this another issue? Or is this possibly dyslexia?

Reid (2016) supported the views of participants by sharing the value of supporting

teachers and providing resources to help them fulling understand the breath of educating

students with dyslexia.

The individual interview participant responses pertaining to this research question

are provided below.

> **RESEARCH QUESTION: What are perceptions of English-language arts teachers in grades 6-8 regarding recommendations for improving professional development on recognizing students with characteristics of dyslexia in the general education classroom?**
>
> **INTERVIEW QUESTION 4: What type of support do you believe is necessary to successfully provide instruction to students with dyslexia in general education classrooms? Why?**
> <u>**Participant 1**</u>
> I think there needs to be somebody that you can go to, a specialist or some kind, because there's times when things just don't seem to add up. And you just need clarification, you need help you need more guidance into is this just a learning disability? Is this another issue? Or is this possibly dyslexia?
> <u>**Participant 2**</u>
> I think knowing more, understanding more about the techniques and the tools that the students are given, to help them kind of accommodate their self. I know that

they get that one on one instruction, but I don't know a lot of what are the tips and the things that they are given so that I can help remind them of it. and things like that.

Participant 3

Okay, a big one. I think it really depends on the student. And, and I think that's true with any case, and I think dyslexia is no different., that there are generalizations that you can make, but it really depends on the individual student, what their needs are, in terms of accommodations, in terms of support. In general, from what I've seen with my students with dyslexia, and other things like that, opportunity for read aloud when asked is a big one, a big accommodation that I see extra time, maybe not forcing them to read out loud has been something that I've seen or heard. I think things like that are sort of the general and then and then just checking back in for understanding not so much necessarily modifying everything but checking back in occasionally to make sure that they are kind of getting what is the intended message.

I think just information. Data- what has worked in the past, what has worked for other teachers, what has been going on? I think, as a teacher, the more information we can have the better we can serve students.

Specific data on that student. Documentation, specific data on that student

Participant 4

Personally, I feel like teachers need to have a professional development that offer strategies, different strategies, because one strategy isn't going to fit every child. I just feel like I would love to have a multitude of strategies that I could offer my child or my kids to help them.

Participant 5

I also taught elementary, and I did my student teaching in first grade. I reached out to the dyslexia teacher to see what it is about, what is this, I can't, you know, I don't understand. There's no support. I don't think any teacher gets any anything. I would like to, I would think, to have teachers even watch a video. So, here is a dyslexia teacher working with a student. Here's the strategies, this is what the strategies look like. This is what the student is doing. Not only just defining it, but show strategies that that dyslexia teacher is using, so that can be modeled by the regular teacher.

Participant 6

For the teacher? Yes.

I think they probably need an awareness of exactly what is going on because the kids do mask so well. And you know, not just looking at the way that they're reading and the way that they're orally able to work with their conferences, because Katy is big on conferences, you know, reading, they may be able to orally tell you what's going on. But if there's a mismatch between their test scores and you know, just the general knowledge. Just kind of investigate.

Implications

This study explored teachers' for grades six through eight perceptions of serving

students with dyslexia. Teachers are dedicated to students and want to develop the tools

and resources to provide services to students with dyslexia. Training and professional

development opportunities and topics were important topics mentioned on the survey and

during individual interviews. Participants provided recommendations for professional

development sessions. Themes and categories emerged to support each of the three

research questions. The reading theme applied to Research Question 1 and was supported

by the decoding, learning, and difficulties/challenges categories. The training theme

applied to Research Question 2 and was supported by the classroom, accommodations,

and parents categories. The support theme applied to Research Question 3 and was

supported by the professional development and designated person categories.

The research for this dissertation was completed before the Texas Legislature

passed House Bill 3 (HB3) in 2019. However, it should be noted the findings and

recommendations support HB3 Implementation of the Special Education Allotment and

Senate Bill 2075 Monitoring.

Recommendations for Future Research

This study demonstrated teachers believe there is a need for professional

development to better understand how to help students with dyslexia in the general

education classroom. The following are recommendations for future research:

1. It is recommended that future research would be to test the effectiveness of

   professional development on student achievement. The teachers in the study

   would be given a pre-test and post-test to determine teachers' knowledge of

dyslexia before and after the professional development. Students would be given a pre-test and post-test to determine reading skills before and after the teacher received the professional development. This information would determine if the professional development resulted in improved reading among the students. An additional component of this study would be to determine if there was a relationship between degree attainment or years of experience and student reading achievement.

2. Instructional coaching is an effective tool for creating effective professional development environments. While teachers respond well to in class coaching (Poglinco & Bach, 2004), there is not a lot of research to support how often or how much coaching is necessary to improve student performance. A recommendation for a future study would be to determine the necessary amount of in-class instructional coaching needed to improve student reading achievement. The study would help determine the amount of in-class instructional coaching a classroom teacher needs in order to provide effective instruction resulting in increased reading achievement.

3. It is important for curriculum in grades 6-8 to include a structured literacy approach to teach students with dyslexia. The components of this curriculum would connect phonics and orthography to address dyslexia and other reading disorders. A suggestion for future research would be to assess general education teachers who teach ELA to students in grades 6-8 on their perceptions and actual knowledge of phonics, phonemic awareness, and other areas of reading acquisition. This study would provide information for future

professional developments to include components that prepare teachers to implement grammar, syntax, phonology, and morphology as part of a structured reading approach.

4. Administrators including principals, assistant principals, and counselors are responsible for creating a school environment that is supportive to students with dyslexia. Administrators need ongoing training and the ability demonstrate a basic understanding of evidence-based reading interventions and instruction. This knowledge will allow administrators to guide, evaluate, and better support teachers.

5. It is recommended that further studies look at holistic approaches to teaching adolescent students with dyslexia. While social and emotional needs were not part of the study, the review of the literature referenced the emotional, social and behavioral issues of students with dyslexia including low self-esteem, negative self-perceptions, low motivation, anxiety, and depression. According to Long et al. (2007), students would benefit from teachers being more mindful of their learning needs and not just the mechanics of learning to read. The study by Long et al. (2007) adds to the evidence of the need for teachers to identify and address the personal, social, and emotional needs of adolescent students with dyslexia. Elbaum and Vaughn (2001) have called for teachers and schools to implement holistic approaches that also consider the emotional and social aspects of students' development. In this study, Participant 4 shared concern for students' emotional and social well-being due to dyslexia. Participant 4 responses included:

I would want as much training as I could, because I feel like it would be
very difficult in the classroom. And I think that's hard for students, and I
don't want them to feel that way in my room. I want them to feel like I will
do whatever I can, whatever I can to help them.

Dyslexia makes it difficult for children to read. It makes the child feel
uncomfortable, less than.

And they tried to let us see it through the eyes of a dyslexia child, dyslexic
child. And I was very grateful for that, because I had my own thoughts of
what it was. But this helped me to really understand how hard it is for
them.

Conclusions

America's classrooms are filled with diverse students with varying needs from
teachers. Training, professional development, support, and partnerships with other
educators and parents/caregivers are needed to help students become successful scholars
and achieve their academic milestones. Three themes emerged to address the research
questions: reading, training, and support. Participants describe current professional
development offerings and recommendations for additional training and support.

References

Aboras, Y. A., Elbanna, M. M., Abdou, R. M., & Salama, H. M. (2012). Development of a remediation program for Egyptian dyslexic children. *Alexandria Journal of Medicine, 48*(2), 147–154. doi:10.1016/j.ajme.2011.11.002

Abreu-Ellis, C., Ellis, J., & Hayes, R. (2009). College preparedness and time of learning disability identification. *Journal of Developmental Education, 32*(3), 28–30. doi:10.1177/0888406408330870

Adams, M. J. (1990). *Beginning to read: Thinking and learning about print.* Cambridge, MA: MIT Press.

Aladwani, A. M., & Al Shave, S.S. (2012). Primary school teachers' knowledge and awareness of dyslexia in Kuwaiti students. *Education*, *132*(3), 499–516. Accession Number: EJ991102.

Alexander-Passe, N. (2006). How dyslexic teenagers cope: an investigation of self-esteem, coping and depression. *Dyslexia, 12*(4), 256-275. https://doi.org/10.1002/dys.318

Alliance for Excellent Education. (2006). *Adolescent Literacy Fact Sheet.* Retrieved from https://www.carnegie.org/publications/adolescent-literacy-fact-sheet/

American Academy of Pediatrics. (1972). Joint organizational statement: The eye and learning disabilities. *Pediatrics, 49*(3), 454–55. doi:10.1542/peds2009-1445

American Academy of Pediatrics, Section on Ophthalmology, Council on Children with Disabilities, American Academy of Ophthalmology, American Association for Pediatric Ophthalmology and Strabismus and American Association of Certified

Orthoptists (2009). Joint statement - Learning disabilities, dyslexia, and vision. *Pediatrics, 124*(2), 837-844. https://doi.org/10.1542/peds.2009-1445

American Council on Education. (2002). *Touching the future: Presidents' task force on teacher education.* Washington, D.C.: American Council on Education. Retrieved from https://www.acenet.edu/Documents/Touching-the-Future-Final-Report-2002.pdf

Anthony, J., Lonigan, C. J., Driscoll, K., Phillips, B.M., & Burgess, S. R. (2003). Phonological sensitivity: A quasi-parallel progression of word structure units and cognitive operations. *Reading Research Quarterly, 38*(4), 470-487. doi:10.1598/RRQ.38.4.3

Armbruster, B., Lehr, F., & Osborn, J. (2001). *Put reading first: The research building blocks for teaching children to read.* Washington, DC: National Institute for Literacy.

Arrow, A., & McLachlan, C. (2011). The emergent literacy approach to effective teaching and intervention. *Perspectives on Language and Literacy*, *37*, 35-37. doi:10.1177.2158244015577664

Artino, A. R. (2012). Academic self-efficacy: From educational theory to instructional practice. *Perspectives on Medical Education*, *1*, 76–85. doi:10.1007/s40037-012-0012-5

Austin Learning Solutions, (2015). *Dyslexia facts and statistics.* Retrieved from http://www.austinlearningsolutions.com/blog/38-dyslexia-facts-and-statistics.html

Baddeley, A. (1986). *Working memory*. Oxford, United Kingdom: Clarendon Press.

Badian, N. A. (2005). Does a visual-orthographic deficit contribute to reading disability? *Annals of Dyslexia, 55*(1), 28–52. http://dx.doi.org/10.1007/s11881-005-0003x

Barber, C., & Mueller, C. T. (2011). Social and self-perceptions of adolescents identified as gifted, learning disabled, and twice exceptional. *Roeper Review*, *33*(2), 109–120. doi:10.1080/02783193.2011.554158

Barton Reading and Spelling System. (n.d.) *Orton-Gillingham influenced*. Retrieved from https://bartonreading.com/the-barton-system-is/#orton

Bateman, C., & Bateman, C.F. (2014). *A principal's guide to special education* (3rd ed.). Arlington, VA: Council for Exceptional Children.

Battistutta, L., Commissaire, E., & Steffgen, G. (2018). Impact of time of diagnosis on the perceived competence of adolescents with dyslexia. *Learning Disability Quarterly*, *41*(3), 170-178. doi:10.11770731948718762124

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report, 13*(4), 544–559. doi:10.1.1.117.5200

Bell, S. (2013). Professional development for specialist teachers and assessors of students with literacy difficulties/dyslexia to learn how to assess and support children with dyslexia. *Journal of Research in Special Educational Needs*, *13*(1), 104–113. doi:10.1111/1471-3802.12002

Bennett, K. J., Brown, K., Boyle, M., Racine, Y., & Offord, D. (2003). Does low reading achievement at school entry cause conduct problems? *Social Science and Medicine*, *56*(12), 2443–2448. doi:10.1016/S0277-9536(02)00247-2

Berninger, V. & Richards, T. (2010). Inter-relationships among behavioral markers, genes, brain and treatment in dyslexia and dysgraphia. *Future neurology, 5*, 597 617. doi:10.2217/fnl.10.22.

Berry, R. (2010). Preservice and early career teachers' attitudes toward inclusion, instructional accommodations and fairness: Three profiles. *The Teacher Educator, 45*(2), 75–95. http://dx.doi.org/10.1080/08878731003623677

Binks-Cantrell, E., Joshi, R. M., & Washburn, E. K. (2012). Validation of an instrument for assessing teacher knowledge of basic language constructs of literacy. *Annals of Dyslexia*, *62*, 153-171. doi:10.1007/s11881-012-0070-8

Birch, S., & Chase, C. (2004). Visual and Language Processing Deficits in Compensated and Uncompensated College Students with Dyslexia. *Journal of Learning Disabilities, 37*(5), 389-410. https://doi.org/10.1177/00222194040370050301

Bjorklund, D. F. (2011). *Children's thinking*. Belmont, CA: Wadsworth.

Blackley, S. (2014). *Why public schools struggle to help kids with dyslexia*. Retrieved from https://www.lexercise.com/blog/public-schools-struggle-to-help-kids-with-dyslexia

Blomert, L., & Willems, G. (2010). Is there a causal link from a phonological awareness deficit to reading failure in children at familial risk for dyslexia? *Dyslexia, 16*(4), 300–317. doi:10.1002/dys.405

Boada, R., Willcutt, E. G., & Pennington, B. F. (2012). Understanding the comorbidity between dyslexia and attention-deficit/hyperactivity disorder. *Topics in Language Disorders, 32*(3), 264–284. http://dx.doi.org/10.1097/TLD.0b013e31826203ac

Boardman, A. G., Roberts, G., Vaughn, S., Wexler, J., Murray, C. S., & Kosanovich, M. (2008). *Effective instruction for adolescent struggling readers: A practice brief*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. Retrieved from https://wvde.state.wv.us/titlei/documents/AdolStrugglingReadersPracticeBrief.pdf

Bocala, C., Morgan, C., Mundry, S., & Mello, D. (2010). *Do states have certification requirements preparing general education teachers to teach students with disabilities? Experience in the Northeast and Islands Region*. (Issues & Answers Report, REL 2010–No. 090). Washington, DC: United States Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Northeast and Islands. Retrieved from https://ies.ed.gov/ncee/edlabs/regions/northeast/pdf/REL_2010090.pdf

Boden, C., & Brodeur, D., (1999), Visual processing of verbal and nonverbal stimuli in adolescents with reading disabilities. *Journal of Learning Disabilities, 32*(1) 58–71. doi:10.1177/002221949903200106

Bogdan R., & Biklen, S.K., (2003). *Qualitative research for education: An introduction to theories and methods* (4th ed.). New York, NY: Pearson.

Bogdan R., & Biklen, S.K., (2007). *Qualitative research for education: An introduction to theories and methods (5th ed.).* Boston, MA: Allyn and Bacon.

Bos, C., Mather, N., Dickson, S., Friedman Narr, R., & Babur, N. (1999). Interactive, collaborative professional development in early literacy instruction: Supporting the

balancing act. *Learning Disabilities Research & Practice, 14(4),* 227-238. doi:10.1207/sldrp1404_4

Brady, S., & Moats, L. (1997). *Informed instruction for reading success: Foundations for teacher preparation. A position paper of the International Dyslexia Association.* Baltimore, MD: International Dyslexia Association.

Budin, S. G., Mather, N., & Cheesman, E. (2010). Examining promising practices to improve linguistic knowledge and inform practice in teacher education. *Perspectives in Language and Literacy, 36*(4), 13-17.

Burns, M. K., & Ysseldyke, J. E. (2009). Reported prevalence of evidence-based instructional practices in special education. *The Journal of Special Education, 43*(1), 3–11. doi:10.1177/0022466908315563

Carreker, S. (2011). Teaching spelling. In J.R. Birsh (Ed.), *Multisensory teaching of basic language skills* (3rd ed., pp 251-291). Baltimore, MD: Paul H. Brookes Publishing Co., Inc.

Carvalhais, L., & Silva, C. (2010). Developmental dyslexia: perspectives on teacher training and learning disabilities in Portugal. *Learning Disabilities: A Contemporary Journal*, *8*, 1-8. doi:10.1080/13664530.2010.1279681

Chiner, E. & Cardona, M. (2013). Inclusive education in Spain: How do skills, resources, and supports affect regular education teachers' perceptions of inclusion? *International Journal of Inclusive Education*, *17*(5), 526-54. https://doi.org/10.1080/13603116.2012.689864

Chouake, T., Levy, T. Javitt, D, & Lavidor, M., (2012). Magnocellular training improves
visual word recognition. *Frontiers in Human Neuroscience, 6*(14), 1–6.
doi:10.3389/fnhum.2012.00014

Cohen (Sayag), E., Hoz, R. & Kaplan, H., (2013). The practicum in preserve teacher
education: A review of empirical studies. *Teaching Education*, *24*(4), 345-380.
doi:10.1080/10476210.2012.711815

Colker, R., Shaywitz, S., Shaywitz, B., & Simon, J. (2013). *Comments on proposed
DSM-5 criteria for specific learning disorder from a legal and medical/scientific
perspective.* Retrieved from
http://dyslexia.yale.edu/wpcontent/uploads/2017/09/CommentsDSM5ColkerShay
witzSimon.pdf

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five
approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Crowe, E. (2010). *Measuring what matters: A stronger accountability model for teacher
education*. Washington, DC: Center for American Progress.

Damer, M. (2010). *Developing effective training and coaching programs that reflect the
IDA knowledge and practice standards for teachers of reading.* Retrieved from
https://mydigitalpublication.com/publication/?i=48994&article_id=517652&view
=articleBrowser&ver=html5#{%22issue_id%22:48994,%22view%22:%22article
Browser%22,%22publication_id%22:%2213959%22,%22article_id%22:%22517
652%22}

Davenport, L. (1991). Adaptation to dyslexia: Acceptance of the diagnosis in relation to coping efforts and educational plans. *Dissertation Abstracts International, 52*(3-B), ISSN 0419- 4217.

Denhart, H. (2008). Deconstructing barriers: Perceptions of students labeled with learning disabilities in higher education. *Journal of Learning Disabilities, 41*(6), 483–497. http://dx.doi.org/10.1177/0022219408321151

Denzin, N. & Lincoln, Y. (2005) *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage.

Disabilities, Opportunities, Internetworking, and Technology. University of Washington. (2017). *What is the difference between accommodation and modification for a student with a disability?* Retrieved from http://www.washington.edu/doit/what-difference-between-accommodation-and-modification-student-disability

Driver Youth Trust, (2014). *The fish in the tree: Why we are failing children with dyslexia.* Retrieved from https://www.driveryouthtrust.com/wp-content/uploads/2019/12/Fish-in-the-Tree.pdf

Dyslexia Action, (2012). *Dyslexia still matters*. Retrieved from http://entrust.education/Pages/Download/3BF4B368-D4D0-41A4-92E7-3B49B1B58168

Dyslexia Research Institute, (2009). *Mission statement*. Retrieved from http://www.dyslexia-add.org/index.html

Edmonds, M. S., Vaughn, S., Wexler, J., Reutebuch, C., Cable, A., Tackett, K. K., & Schnakenberg, J. W. (2009). A synthesis of reading interventions and effects on

reading comprehension outcomes for older struggling readers. *Review of Educational Research*, *79*(1), 262–300. doi:10.3102/0034654308325998

Educator Preparation, Tex. Educ. Code Ch.21 §21.044(b) (2019).

Elbaum, B., & Vaughn, S. (2001). School based interventions to enhance the self-concept of students with learning disabilities: A meta-analysis. *The Elementary School Journal ,101*, 303–329. https://doi.org/10.1086/499670

Ellis, A. W. (2016). *Reading, writing and dyslexia (classic edition): A cognitive analysis*. New York, NY: Psychology Press.

Erlandson, D. L., Harris, E. L., Skipper, B.L., & Allen, S. D. (1993). *Doing naturalistic inquiry. A guide to methods.* Newbury Park, CA: Sage Publications.

Facoetti, A., Trussardi, A. N., Ruffino, M., Lorusso, M. L., Cattaneo, C., Galli, R., . . . & Zorzi, M. (2010). Multisensory spatial attention deficits are predictive of phonological decoding skills in developmental dyslexia. *Journal of Cognitive Neuroscience, 22*(5), 1011-1025. https://doi.org/10.1162/jocn.2009.21232

Fasick, F. A. (1977). Some uses of untranscribed tape recordings in survey research. *The Public Opinion Quarterly, 41*(4), 549-552. https://doi.org/10.1086/268415

Ferrer, E., Shaywitz, B.A., Holahan, J.M., Marchione, K., & Shaywitz, S.E. (2010). Uncoupling of reading and IQ over time: Empirical evidence for a definition of dyslexia. *Psychological Science, 21*(1), 93-101. doi:10.1177/0956797609354084

Firestone, W.A. (1993). Alternative arguments for generalizing from data as applied to qualitative research. *Educational Researcher, 22*(4), 16–23. https://doi.org/10.3102/0013189X022004016

Fisher, D. & Frey, M. (2007). Implementing a schoolwide literacy framework: Improving achievement in an urban elementary school. *The Reading Teacher, 61*, 32-45. Retrieved from https://s3-us-west-1.amazonaws.com/fisher-and-frey/documents/elem_schoolwide.pdf

Fisher, D., & Frey, N., (2016). Only as special as necessary. *Educational Leadership, 74*(3), 85-86. Retrieved from http://www.ascd.org/publications/educational-leadership/nov16/vol74/num03/Only-as-Special-as-Necessary.aspx

Foorman, B. R., & Torgeson, J. (2001). Critical elements of classroom and small-group instruction promote reading success in all children. *Learning Disabilities Research and Practice, 16*, 203-212. https://doi.org/10.1111/0938-8982.00020

Forlin, C., Loreman, T. Sharma, U., & Earle, C. (2009). Demographic differences in changing pre-service teachers' attitudes, sentiments and concerns about inclusive education. *International Journal of Inclusive Education, 13*(2), 195-209. https://doi.org/10.1080/13603110701365356

Frith, U. (1985). Beneath the surface of developmental dyslexia. In K.E. Patterson, J.C. Marshall, & M. Coltheart (Eds.). *Surface dyslexia* (pp. 301–329). London, England: Erlbaum.

Gabor, G. (2010). Can students with dyslexia be effectively supported in the diversity of an international school setting? *Journal of Research in Special Education Needs, 10*(1), 31-41. https://doi.org/10.1111/j.1471-3802.2009.01141.x

Galaburda, A. M. (2005). Dyslexia: A molecular disorder of neuronal migration: The 2004 Norman Gerschwind memorial lecture. *Annals of Dyslexia, 55*(2), 151–65. http://dx.doi.org/10.1007/s11881-005-0009-4

Gall, M. D., Gall, J. P., & Borg, W. R. (2006). *Educational research: An introduction* (8th ed.). Boston, MA: Pearson, Allyn & Bacon.

Gallardo, M., Heiser, S., & Arias-Mclaughlin, X. (2015). Modern languages and specific learning difficulties (SpLD): Implications of teaching adult learners with dyslexia in distance learning. *Open Learning: The Journal of Open, Distance and e-learning*, *30*(1) 53–72. https://doi.org/10.1080/02680513.2015.1031647

Georgiou, G. K., Papadopoulos, T. C., Zarouna, E., & Parrila, R. (2012). Are auditory and visual processing deficits related to developmental dyslexia? *Dyslexia: An International Journal of Research and Practice, 18*(2), 110–129. doi:10.1002/dys.1439

Gibson, S., & Kendall, L. (2010). Stories from school: Dyslexia and learners' voices on factors impacting on achievement. *Support for Learning, 25*(4), 187–193. doi:10.1111/j.1467-9604.2010.01465.x

Givon, S., & Court, D. (2010). Coping strategies of high school students with learning disabilities: A longitudinal qualitative study and grounded theory. *International Journal of Qualitative Studies in Education, 23*(3), 283-303. https://doi.org/10.1080/09518390903352343

Gray, E. S. (2008). Understanding dyslexia and its instructional implications: A case to support intense intervention. *Literacy Research and Instruction, 47*(2), 116–123. doi:10.1080/19388070701878790

Greene, K., (2015). Dyslexia myths & facts. *Scholastic Teacher, 125*(3), 26-28 Retrieved from https://www.scholastic.com/teachers/articles/teaching-content/dyslexia-myths-and-facts/

Guba, E.G., & Lincoln, Y.S. (1989). *Fourth generation evaluation*. Newbury Park, CA: Sage Publications.

Guskey, T.R., & Yoon, K.S. (2009). What works in professional development? *Phi Delta Kappan, 90*, 495-500. Retrieved from http://outlier.uchicago.edu/computerscience/OS4CS/landscapestudy/resources/Guskey-and-Yoon-2009.pdf

Guthrie, J.T., & Davis, M. H. (2003). Motivating struggling readers in middle school through an engagement model of classroom practice. *Reading and Writing Quarterly, 19*, 59–85. doi:10.1080/10573560308203

Guthrie, J. T., & Wigfield, A. (2000). Engagement and motivation in reading. In M. Kamil, R. Barr, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research: Volume III* (pp. 403–425). New York: Longman.

Guthrie, J. T., Wigfield, A., Barbosa, P., Perencevich, K. C., Taboada, A., Davis, M. H., Scafiddi, N. T., & Tonks, S. (2004). Increasing Reading Comprehension and Engagement Through Concept-Oriented Reading Instruction. *Journal of Educational Psychology, 96*(3), 403–423. https://doi.org/10.1037/0022-0663.96.3.403

Gwernan-Jones, R., & Burden, R. L. (2010). Are they just lazy? Student teachers' attitudes about dyslexia. *Dyslexia: An International Journal of Research and Practice, 16*(1), 66–86. doi:10.1002/dys.393

Hall, S. L. & Moats, L. C. (1999). *Straight talk about reading: How parents can make a difference during the early years*. New York, NY: McGraw-Hill Education.

Hallahan, D. & Kauffman, J. (2006). *Exceptional learners: An introduction to special education*. Boston, MA: Pearson.

Handler, S. (2009). Joint statement--Learning disabilities, dyslexia, and vision. *Pediatrics*, *124*(2), 837-844. doi:10.1542/peds.2009-1445

Handler, S., & Fierson, W. (2011). Learning disabilities, dyslexia, and vision. *Pediatrics*, *127*(3), e818-e856. doi:10.1542/peds.2010-3670

Hanson, E. (2017). States' laws to support dyslexic children mostly lack funding, accountability, training mandates. APM Reports. Retrieved from https://www.apmreports.org/story/2017/10/24/dyslexia-laws-by-state

Hatcher, P., Hulme, C., & Ellis, A. (1994). Ameliorating reading failure by integrating the teaching of reading and phonological skills: The phonological linkage hypothesis. *Child Development, 65*, 41-57. doi:10.1111/j.1467-8624.1994.tb00733

Heath, A.W. (1997). The proposal in qualitative research. *The Qualitative Report, 3*(1). Retrieved from http://www.nova.edu/ssss/QR/QR3-1/heath.html

Hornsby, B. (2011). *Overcoming dyslexia*. New York, NY: Random House.

Hornstral, L., Denessen, E., Bakker, J., van den Bergh, L., & Marinus, V. (2010) Teacher attitudes toward dyslexia: Effects on teacher expectations and the academic achievement of students with dyslexia. *Journal of Learning Disabilities, 43*(6), 515–529. doi:10.1177/0022219409355479

Horowitz, S. H., Rawe, J., & Whittaker, M.C. (2017). *The State of Learning Disabilities: Understanding the 1 in 5*. New York: National Center for Learning Disabilities. Retrieved from

https://www.ncld.org/research/state-of-learning-disabilities

Houston Baptist University. (n.d.). *Pillar three: Embrace the challenge of Christian graduate education.* Retrieved from

https://hbu.edu/about-hbu/the-ten-pillars/pillar-three-embrace-the-challenge-of-christian-graduate-education/

Hudson, R. F., High, L., & Al Otaiba, S. (2007). Dyslexia and the brain: What does current research tell us? *The Reading Teacher, 60*(6), 506–515. doi:10.1598/RT.60.6.1.

Hudson, R. F., Torgesen, J. K., Lane, H. B., & Turner, S. J. (2010). Relations among reading skills and sub-skills and text-level reading proficiency in developing readers. *Reading and Writing, 25*(2), 483-507. doi:10.1007/s11145-010-9283-6

Husserl, E. (1935/1970). *The crisis of European sciences and transcendental phenomenology: An introduction to phenomenological philosophy*. Evanston, IL: Northwestern University Press.

Individuals with Disabilities Education Improvement Act (IDEA), 20 U.S.C. §1400. 34 CFR §300.8(10)(i) (2004).

Ingesson, S. G. (2007). Growing up with dyslexia: Interviews with teenagers and young adults. *School Psychology International, 28*, 574–591. doi:10.1177/0143034307085659

Institute for Multi-Sensory Education. (2016). *Orton-Gillingham.* Retrieved from https://www.orton-gillingham.com/about-us/orton-gillingham/

International Dyslexia Association. (n.d.) *Adolescents and adults with dyslexia fact sheet*. Retrieved from https://dyslexiaida.org/adolescents-and-adults-with-dyslexia-fact-sheet/

International Dyslexia Association. (2000). *Orton-Gillingham based and/or multisensory structured language approaches.* Retrieved from http://www.dys-add.com/resources/Myths/IDA.OG.Fact.Sheet.pdf

International Dyslexia Association, (2002). *Definition of dyslexia.* Retrieved from https://dyslexiaida.org/definition-of-dyslexia/

International Dyslexia Association (2010). *Knowledge and practice standards for teachers of reading.* Retrieved from http://www.readingrockets.org/sites/default/files/IDA%20Knowledge%20and%20Practice%20Standards%20for%20Teaching%20of%20Reading.pdf

International Dyslexia Association. (2012). *Information and resources for adolescents and adults with dyslexia – It's never too late.* Retrieved from http://sw.dyslexiaida.org/wp-content/uploads/sites/39/2017/02/It-Is-Never-Too-Late-FactSheet-February2012NEW.pdf

International Dyslexia Association (2014) *Multisensory structured language teaching fact sheet.* Retrieved from https://dyslexiaida.org/multisensory-structured-language-teaching-fact-sheet/

International Dyslexia Association. (2016). *ESSA Gives States More Control, Targets Needs of Struggling Readers.* Retrieved from https://dyslexiaida.org/essa-gives-states-more-control-targets-needs-of-struggling-readers/

International Dyslexia Association. (2017). *Dyslexia basics*. Retrieved from

    https://dyslexiaida.org/dyslexia-basics/

International Dyslexia Association (2019). *IDA dyslexia handbook: What every family*

    should know. Rerieved from https://dyslexiaida.org/ida-dyslexia-handbook/

Iovino, I., Fletcher, J. M., Breitmeyer, B. G., & Foorman, B. R. (1998). Colored overlays

    for visual perceptual deficits in children with reading disability and attention

    deficit/hyperactivity disorder: Are they differentially effective*? Journal of*

    Clinical and Experimental Neuropsychology, 20(6), 791–806.

    http://dx.doi.org/10.1076/jcen.20.6.791.1113

The IRIS Center. (2012). *Classroom diversity: An introduction to student differences.*

    Retrieved from https://iris.peabody.vanderbilt.edu/module/div/#content

The IRIS Center. (2016). *Youth with disabilities in juvenile corrections (Part 1):*

    Improving instruction. Retrieved from

    https://iris.peabody.vanderbilt.edu/module/jj1/#content

James, K.H. and Engelhardt, L. (2012). The effects of handwriting experience on

    functional brain development in pre-literate children. *Trends in Neuroscience and*

    Education, 1(1), 32-42. https://doi.org/10.1016/j.tine.2012.08.001

Jednorog, K., Gawron, N., Marchewka, A., Heim, S., Grebowska, A. (2013). Cognitive

    subtypes of dyslexia are characterized by distinct patterns of grey matter volume.

    Brain Structure and Function, 219(5): 1697–1707. doi:10.1007/s00429-013-

    0595-6

Jobling, A., & Moni, K. B. (2004). 'I never imagined I'd have to teach these children':

    Providing authentic learning experiences for secondary pre-service teachers in

teaching students with special needs. *Asia-Pacific Journal of Teacher Education*, *32*(1), 5–22. doi:10.1080/1359866042000206026

Johnson, W., McGue, M., & Iacono, G. (2005). Disruptive behavior and school grades: Genetic and environmental relations in 11-year-olds. *Journal of Educational Psychology, 97*, 391-405. doi:10.1037/0022-0663.97.3.391

Juneja, P. (2018). Dyslexia: Challenging behaviors and characteristics. *Indian Journal of Health and Wellbeing, 9*(7), 964-967. http://www.iahrw.com/index.php/home/journal_detail/19#list

Kantor, K. S. (2011). *General educators' perceptions of preparedness to teach in mixed ability classrooms*. (Doctoral dissertation). Retrieved from ProQuest. (Order No. AAT 3434585).

Katz, J. (2012). *Teaching to diversity: The three-block model of universal design for learning.* Winnipeg, MB*:* Portage & Main Press.

Kegel, C. A. T., van der Kooy-Hofland, V. A. C., & Bus, A. G. (2009). Improving early phoneme skills with a computer program: Differential effects of regulatory skills. *Learning and Individual Differences, 19*(4), 549–554. doi:10.1016/j.lindif.2009.07.002

Kempe, C., Gustafson, S., & Samuelsson, S. (2011). A longitudinal study of early reading difficulties and subsequent problem behaviors. *Scandinavian Journal of Psychology*, *52*(3), 242–250. doi:10.1111/j.1467-9450.2011.00870.x

Kenner, B. B., Terry, N. P., Friehling, A. H., & Namy, L. L. (2017). Phonemic awareness development in 2.5- and 3.5-year-old children: An examination of emergent, receptive, knowledge and skills. *Reading and Writing: An Interdisciplinary*

Journal, *30*(7), 1575–1594. https://doi-org.libproxy.hbu.edu/10.1007/s11145-017-9738-0

Kim, Y.-S., Wagner, R. K., & Lopez, D. (2012). Developmental relations between reading fluency and reading comprehension: A longitudinal study from grade 1 to grade 2. *Journal of Experimental Child Psychology, 113*(1), 93-111. doi:10.1016/j.jecp.2012.03.002

Kirby, A., Davies, R., & Bryant, A. (2005). Do teachers know more about specific learning difficulties than general practitioners? *British Journal of Special Education, 32*(3), 122-126. http://dx.doi.org.libproxy.hbu.edu/10.1111/j.0952-3383.2005.00384.x

Klassen, R. M., & Lynch, S. L. (2007). Self-efficacy from the perspective of adolescents with LD and their specialist teachers. *Journal of Learning Disabilities, 40,* 494–507. doi:10.1177/0 0222194070400060201

Kvale, S. & Brinkmann, S. (2009*). Interviews: Learning the craft of qualitative research interviewing* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Lack, D. (2010). Review article: Another joint statement regarding learning disabilities, dyslexia, and vision—A rebuttal. *Optometry - Journal of the American Optometric Association*, *81*(10), 533-543. doi:10.1016/j.optm.2009.11.007

Lallier, M., Donnadieu, S., & Valdois, S. (2012). Developmental dyslexia: Exploring how much phonological and visual attention span disorders are linked to simultaneous auditory processing deficits. *Annals of Dyslexia*, 63(2), 97–116. doi:10.1007/s11881-012-0074-4

Lambe, J & Bones, R. (2008). The impact of a special school placement on student

    teacher beliefs about inclusive education in Northern Ireland. *British Journal of*

    Special Education, *35*(2), 108-116. https://doi.org/10.1080/02607470601098369

Lancy, D. (1993). *Qualitative research in education: An introduction to the major*

    traditions. New York, NY: Longman.

Learning Disabilities Association of America. (2013) *Types of learning disabilities*.

    Retrieved from https://ldaamerica.org/types-of-learning-disabilities/

Levy, T., Walsh, V. & Lavidor, M. (2009). Dorsal stream modulation of visual word

    recognition in skilled readers. *Vision Research, 50*(9), 883–888.

    http://dx.doi.org.proxy1.ncu.edu/10.1016/j.visres.2010.02.019

Leyser, Y., & Romi, S. (2008). Religion and attitudes of college pre-service

    teachers toward students with disabilities: Implications for higher education.

    Higher Education, 55, 703-717. http://dx.doi.org/10.1007/s10734-

    007-9084-2

Literary Resources, Inc., (2013). *What is phonemic awareness?* Retrieved from

    https://www.literacyresourcesinc.com/what-is-phonemic-awareness/

Lock, R. H., & Layton, C. A. (2001). Succeeding in postsecondary ed through self-

    advocacy. *Teaching Exceptional Children, 34*(2), 66–71.

    https://doi.org/10.1177/004005990103400210

Long, L., MacBlain, S., & MacBlain, M. (2007). Supporting students with dyslexia at the

    secondary level: An emotional model of literacy. *Journal of Adolescent & Adult*

    Literacy, 51, 124-134. doi:10.1598/JAAL.51.2.4

Lovett, M. W., Steinbach, K. A., & Frijters, J. C. (2000). Remediating the core deficits of developmental reading disability: A double-deficit perspective. *Journal of Learning Disabilities, 33*(4), 334–358. doi:10.1177/002221940003300406

Ludlow, A., Wilkins, A., & Heaton, P. (2006). The effect of coloured overlays on reading ability in children with autism. *Journal of Autism & Developmental Disorders, 36*(4), 507-516. doi:10.1007/s10803-006-0090-5

Lyon, Shaywitz, & Shaywitz, (2003). A definition of dyslexia. *Annals of Dyslexia, 53*, 1-14. doi:10.1007/s11881-003-0001-9

Mather, N., & Wendling, B. (2012). *Essentials of dyslexia assessment and intervention*. Hoboken, NJ: John Wiley & Sons.

Marchand-Martella, N. E., Martella, R. C., Modderman, S. L., Petersen, H. M., & Pan, S. (2013). Key areas of effective adolescent literacy programs. *Education and Treatment of Children, 36*(1), 161–184. doi:10.1353/etc.2013.0005

Mattson, E. & Roll-Pettersson, L. (2007). Segregated groups or inclusive education? An interview study with students experiencing failure in reading and writing. *Scandinavian Journal of Educational Research, 51*(3), 239-252. doi:10.1080/00313830701356109.

McCray, E. D., & McHatton, P. (2011). "Less afraid to have them in my classroom": Understanding pre-service general educators' perceptions about inclusion. *Teacher Education Quarterly, 38*, 135-155. Retrieved from https://files.eric.ed.gov/fulltext/EJ960622.pdf

McNulty, M. A. (2003). Dyslexia and the life course. *Journal of Learning Disabilities, 36*(4), 363–382. http://dx.doi.org/10.1177/00222194030360040701

Menghini, D., Finzi, A., Carlesimo, G., & Vicari, S. (2011). Working memory impairment in children with developmental dyslexia: Is it just a phonological deficit? *Developmental Neuropsychology*, *36*(2), 199–213. doi:10.1080/87565641.2010.549868

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation.* San Francisco, CA: Jossey-Bass.

Milinki, A.K. (1999). *Cases in qualitative research: Research reports for discussion and evaluation.* Los Angeles, CA: Pryczak Publishing.

Moats, L.C. (2010). *Speech to print: Language essentials for teachers* (2nd ed.). Baltimore, Maryland: Paul H. Brookes Publishing Co., Inc.

Morgan, P. L., & Fuchs, D. (2007). Is there a bidirectional relationship between children's reading skills and reading motivation? *Exceptional Children, 73*(2), 165–183. doi:10.1177/001440290707300203

Morris, R. D., Lovett, M. W., Wolf, M., Sevcik, R. A., Steinbach, K. A., Frijters, J. C., & Shapiro, M. B. (2012). Multiple-component remediation for developmental reading disabilities: IQ, socioeconomic status, and race as factors in remedial outcome. *Journal of Learning Disabilities*, *45*(2), 99–127. doi:10.1177/0022219409355472

Mullis, I. V. S., Martin, M. O., Kennedy, A. M. & Foy, P. (2007). *PIRLS 2006 international report: IEA's progress in international reading literacy study in primary schools in 40 countries.* Chestnut Hill, MA: Boston College.

Nalavany, B. A., Carawan, L. W., & Brown, L. J. (2011). Considering the role of

    traditional and specialist schools: Do school experiences impact the emotional

    well-being and self-esteem of adults with dyslexia? *British Journal of Special*

    Education, *38*(4), 191–200. http://dx.doi.org.libproxy.hbu.edu/10.1111/j.1467-

    8578.2011.00523.x

National Institute of Child Health and Human Development. (2000). *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. (Report No. NIH-00-4769). Retrieved from

    https://www.nichd.nih.gov/publicaitons/pubs/nrp/Pages/smallbook.aspx

National Institute of Neurological Disorders and Stroke. (n.d.). *Dyslexia information*

    page. Retrieved from https://www.ninds.nih.gov/disorders/all-disorders/dyslexia-

    information-page

Ness, M. K., & Southall, G. (2010). Preservice teachers' knowledge of and beliefs about

    dyslexia. *Journal of Reading Education, 36*(1), 36–43.

    doi:10.108/194001158.2010.941039

Nonis, J. & Jernice, T. (2011) Pre-service teachers' views about inclusion in Singapore.

    J*ournal of the International Association of Special Education*, *12*(1), 3-9.

    EJ947838

Noor, K. (2008). Case study: A strategic research methodology. *American Journal of*

    Applied Sciences, 5(11), 1602–1604. doi:10.38844/ajassp.2008.1062

Patton M.Q. (2015). *Qualitative research and evaluation methods* (3rd ed.). Thousand

    Oaks, CA: Sage Publications.

Peer, L. (2001). Dyslexia and its manifestations in the secondary school. In L. Peer and

   G. Reid (Eds.), *Dyslexia: Successful inclusion in the secondary school.* London:

   David Fulton Publishers.

Pennington, B. F. & Lefly, D.L. (2001). Early reading development in children at family

   risk for dyslexia. *Child Development*, *72*, 816-833. doi:10.1111/1467-8624.00317

Peterson, R. L., & Pennington, B. F. (2015). Developmental dyslexia. *Annual review of*

   clinical psychology, *11*, 283-307. doi:10.1146/annurev-clinpsy-032814.112842

Petkova, A., Kudlácek, M., & Nikolova, E. (2012). Attitudes of physical education

   students (last University year) and physical education teachers toward teaching

   children with physical disabilities in general physical education classes in

   Bulgaria. *European Journal of Adapted Physical Activity, 5*(2), 89-98.

   doi:10.5507/euj.2012.010

Poglinco, S. M., & Bach, A. J. (2004). The heart of the matter: Coaching as a vehicle for

   professional development. *Phi Delta Kappan*, *85*(5), 398–400.

   https://doi.org/10.1177/003172170408500514

Polit, D. F., & Beck, C. T. (2017). *Nursing research: Generating and assessing evidence*

   for nursing practice (10th ed.). Philadelphia, PA: Wolters Kluwer.

Prochnow, J. E., Tunmer, W. E., Chapman, J. W., & Greaney, K. T. (2001). A

   longitudinal study of early literacy achievement and gender. *New Zealand Journal*

   of Educational Studies, *36*(2), 221–236. doi:10.1057/9781137415578_7

Pumfrey, P., & Reason, R. (2013). *Specific learning difficulties (dyslexia): Challenges*

   and responses. New York, NY: Routledge.

Rashotte, C., MacPhee, K., & Torgesen, J. (2001). The effectiveness of a group reading instruction program with poor readers in multiple grades. *Learning Disability Quarterly*, *24,* 1-16. doi:10.1007/s10648-015-9321-7

Reed, B. (2011). Certainty. In E.N. Zalta (Eds), *The Stanford Encyclopedia of Philosophy* (Winter Edition). Retrieved from https://plato.stanford.edu/archives/win2011/entries/certainty/

Reid, G. (2016). *Dyslexia: A practitioner's handbook*. New York, NY: John Wiley & Sons.

Roberts, G., Torgesen, J., Boardman, A., & Scammacca Lewis, N. (2008). Evidence-based strategies for reading instruction of older students with learning disabilities. *Learning Disabilities Research & Practice*, *23*(2), 63 - 69. doi:10.1111/j.15405826.2008.00264.x.

Rodis, P., Garrod, A., & Boscardin, M. L. (2001). *Learning disabilities and life stories*. New York, NY: Allyn & Bacon.

Roller, M.R., & Lavrakas, P.J. (2015). *Applied qualitative research design: A total quality framework approach.* New York, NY: Guilford Press.

Rose, J. (2009). *Identifying and teaching children and young people with dyslexia and literacy difficulties: An independent report.* Department for Children, Schools and Families (DCSF). Retrieved from http://dera.ioe.ac.uk/14790/7/00659-2009DOM-EN_Redacted.pdf

Rosenberg, J. P., & Yates, P. M. (2007). Schematic representation of case study research designs. *Journal of Advanced Nursing*, *60*(4), 447–452. doi:10.1111/j.13652648.2007.04385.x

Schneider, W., Roth, E., & Ennemoser, M. (2000). Training phonological skills and letter knowledge in children at risk for dyslexia: A comparison of three kindergarten intervention programs. *Journal of Educational Psychology, 92*(2), 284–295. doi:10.1037/0022-0663.92.2.284

Schuchardt, K., Maehler, C., & Hasselhorn, M. (2008). Working memory deficits in children with specific learning disorders. *Journals of Learning Disabilities, 41*(6), 514-523. https://doi.org/10.1177/0022219408317856

Schulte-Koerne, G., Deimel, W., Bartling, J., & Remschmidt, H. (1998). Auditory processing and dyslexia: Evidence for a specific speech processing deficit. *NeuroReport, 9*(2*)*, 337–340. doi:10.1097/00001756-199801260-00029

Screening and Treatment for Dyslexia, Tex. Educ. Code Ch.38 §38.003 (2019).

Share, D. (1995). Phonological recoding and self-teaching. *Cognition, 55,* 151-218. https://doi.org/10.1016/0010-0277(94)00645-2

Sharma, U., Loreman, T., & Forlin, C. (2012). Measuring teacher efficacy to implement inclusive practices. *Journal of Research in Special Educational Needs, 12*(1), 12–21. doi:10.1111/j.1471-3802.2011.01200.x

Shastry, B. S. (2007). Developmental dyslexia: An update. *Journal of Human Genetics, 52*(2), 104–09. http://dx.doi.org/10.1007/s10038-006-0088-z

Shaywitz, S. E. (1996). Dyslexia. *Scientific American, 275*(5), 98-104. Retrieved from http://www.cogsci.ucsd.edu/~coulson/CNL/shaywitz-dyslexia.pdf

Shaywitz, S. (2003). *Overcoming dyslexia: A new and complete science-based program for reading problems at any level.* New York: Random House

Shaywitz, S. E., & Shaywitz, B. A. (2017). Dyslexia. In *Handbook of Child Language Disorders* (pp. 130-148). New York, NY: Psychology Press.

Shaywitz, B.A., Fletcher, J.M. Shaywitz, S.E. (1995). Defining and classifying learning disabilities and attention-deficit/hyperactivity disorder. *Journal of Child Neurology, 10*(1), s50-s57. https://doi.org/10.1177%2F08830738950100S111

Shaywitz, S. E., Morris, R., & Shaywitz, B. A. (2008). The education of dyslexic children from childhood to young adulthood. *Annual Review of Psychology, 59*(1), 451–475. doi:10.1146/annurev.psych.59.103006.093633

Shaywitz, S. E., Shaywitz, B.A., Fletcher, J.M., & Escobar, M.D. (1990). Prevalence of reading disability in boys and girls: Results of the Connecticut Longitudinal Study. *Journal of the American Medical Association, 264*(6), 998–1002.

Shaywitz, S. E., Shaywitz, B. A., Fulbright, R. K., Skudlarski, P., Mencl, W. E., Constable, R. T., Gore, J. C. (2003). Neural systems for compensation and persistence: Young adult outcome of childhood reading disability. *Biological Psychiatry, 54*(1), 25–33. doi:10.1016/S0006-3223(02)01836-X

Sherman, M.K. (2019). *Pre-service primary teachers' perceptions and knowledge of dyslexia and basic language concepts*. (Doctoral Dissertation). Retrieved from ProQuest Dissertations Publishing. (ProQuest Number 13880374)

Sigmundsson, H. (2005). Do visual processing deficits cause problem on response time task for dyslexics? *Brain and Cognition*, *58(*2), 213–216. doi:10.1016/j.bandc.2004.11.007

Simon, M.K., & Goes, J. (2015) *Assumptions, limitations, delimitations and scope of the study.* Retrieved from http://www.dissertationrecipes.com/wp-content/uploads/2011/04/Assumptions-Limitations-Delimitations-and-Scope-of-the-Study.pdf

Simons, H. (2009). *Case study research in practice*. Los Angeles, CA: Sage Publications.

Simos, P.G., Fletcher, J.M., Bergman, E., Breier, J.I., Foorman, B.R., Castillo, E.M., . . . & Papanicolaou, A.C. (2002). Dyslexia-specific brain activation profile becomes normal following successful remedial training. *Neurology, 58*(8)*,* 1203-13. doi:10.1212/WNL.58.8.1203

Skinner, M. E. (2007). Faculty willingness to provide accommodations and course alternatives to postsecondary students with learning disabilities. *International Journal of Special Education, 22*(2), 32- 45. doi:10.1177/0741932510362188

Skottun, B. C. (2000). The magnocellular deficit theory of dyslexia: The evidence from contrast sensitivity. *Vision Research, 40*(1), 111–127. doi:10.1016/S00426989(99)00170-4

Smart, D., Sanson, A. & Prior, M. (1996). Connections between reading disability and behavior problems: Testing temporal and causal hypotheses. *Journal of Abnormal Child Psychology*, *24(3),* 363–383. https://doi.org/10.1007/BF01441636

Smith, J., & Noble, H. (2014). Bias in research. *Evidence-based Nursing*, *17*(4), 100-101. doi:10.1136/eb-2014-101946

Smith, D. & Tyler, N. (2011). Effective inclusive education: Equipping education professionals with necessary skills and knowledge. *Prospects,41*(3), 323–339. doi:10.1007/s11125-011-9207-5

Snowling, M. J. (1989). A longitudinal case study of developmental phonological

dyslexia. *Cognitive Neuropsychology, 6,* 379-401.

doi:10.1080/02643298908253289

Snowling, M. J. (1998). Dyslexia as a phonological deficit: Evidence and implications.

Child Psychology and Psychiatry Review, 3(1), 4-11.

 doi:10.1111/1475-3588.00201.

Snowling, M. J. (2013). Early identification and interventions for dyslexia: A

contemporary view. *Journal of Research in Special Education Needs, 13*(1), 7-14.

doi:10.1111/j.1471-3802.2012.01262.x.

Snowling, M. J., & Hulme, C. (2011). Evidence-based interventions for reading and

language difficulties: Creating a virtuous circle. *British Journal of Educational

Psychology, 81*(1), 1–23. doi:10.1111/j.2044-8279.2010.02014.x

Spafford, C.S., Grosser, G.S. (2005). *Dyslexia and reading difficulties: Research and

resource guide for working with all struggling readers.* Boston: Pearson.

Stampoltzis, A., & Polychronopoulou, S. (2009). Greek university students with dyslexia:

An interview study. *European Journal of Special Needs Education*, *24*(3), 307–

321. doi:10.1080/08856250903020195

Stanovich, K. E. (1986). Matthew effect in reading: Some consequences of individual

differences in the acquisition of literacy. *Reading Research Quarterly, 21,* 360-

407. doi:10.1598/RRQ.21.4.1

Stanovich, K. E., & Siegel, L. S. (1994). Phenotypic performance profile of reading-

disabled children: A regression-based test of the phonological-core variable-

difference model. *Journal of Educational Psychology*, *86*, 1-30. doi:10.1177/002221940606390010701

Stein, J. (2001). The magnocellular theory of developmental dyslexia. *Dyslexia, 7*(1), 12-36. doi:10.1002/dys.186

Stoeber, J. (2001). The social desirability scale-17 (SD-17). *European Journal of Psychological Assessment, 17*(3), 222–232. https://doi.org/10.1027//10155759.17.3.222

Students with Dyslexia and Related Disorders, 19 Tex. Admin. Code (TAC) §74.28 (2018).

Tanaka, H., Black, J., Hulme, C., Stanley, L., Kesler, S., Whitfield-Gabrieli, S., . . . Hoeft, F. (2011). The brain basis of the phonological deficit in dyslexia is independent of IQ. *Psychological Science, 22*(11), 1442–1451. doi:10.1177/0956797611419521

Terras, M., Thompson, L., & Minnis, H. (2009). Dyslexia and psycho-social functioning: An exploratory study of the role of self-esteem and understanding. *Dyslexia, 5*(4), 304–327. doi:10.1002/dys.386

Texas Education Agency. (2017). *2016-2017 Texas academic report*. Retrieved from https://rptsvr1.tea.texas.gov/perfreport/tapr/2017/srch.html?srch=C

Texas Education Agency. (2018). *The dyslexia handbook – 2018 Update procedures concerning dyslexia and related disorders*. Austin, TX: Texas Education Agency.

Thomson, J.M., Leong, V. & Goswami, U. (2013). Auditory processing interventions and developmental dyslexia: A comparison of phonemic and rhythmic approaches. *Reading and Writing, 26*(2) 139-161. https://doi.org/10.1007/s11145-012-9359-6

Thorwarth, C. (2014). Debunking the myths of dyslexia. *Leadership and Research in Education: The Journal of the Ohio Council of Professors of Educational Administration (OCPEA), 1,* 51-66. Retrieved from https://www.icpel.org/uploads/1/5/6/2/15622000/ocpea_volume_1_october_2014. pdf

Tomlinson, C. (2005). Grading and differentiated: Paradox or good practice? *Theory Into Practice, 44*(3), 262–269. doi:10.1207/s15430421tip4403_11

Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care, 19*(6), 349-357. doi:10.1093/intqhc/mzm042

Torgesen, J. K., Wagner, R. K., Rashotte, C. A., Herron, J., & Lindamood, P. (2010). Computer-assisted instruction to prevent early reading difficulties in students at risk for dyslexia: Outcomes from two instructional approaches. *Annals of Dyslexia, 60*(1), 40–56. doi:10.1007/s11881-009-0032-y

Trochim, W., Donnelly, J.P., and Arora, K. (2016). *Research methods: The essential knowledge base*. Boston, MA: Cengage.

Trzesniewski, K. H., Moffitt, T. E., Caspi, A., Taylor, B., & Maughan, B. (2006). Revisiting the association between reading achievement and antisocial behavior: New evidence of an environmental explanation from a twin study. *Child Development, 77*(1), 72–88. http://dx.doi.org/10.1111/j.1467–8624.2006.00857.x

Tunmer, W., & Greaney, K. (2010). Defining dyslexia. *Journal of Learning Disabilities, 43*(3), 229–243. http://dx.doi.org/10.1177/0022219409345009

Undheim, A., Wichstrøm, L., & Sund, A. (2011). Emotional and behavioral problems among school adolescents with and without reading difficulties as measured by the youth self-report: A one-year follow-up study. *Scandinavian Journal of Educational Research*, *55*(3), 291–305. doi:10.1080/00313831.2011.576879

University of Michigan. (n.d.). *Debunking the myths about dyslexia*. Retrieved from http://dyslexiahelp.umich.edu/dyslexics/learn-about-dyslexia/what-is-dyslexia/debunking-common-myths-about-dyslexia

University of Pennsylvania. (n.d.). *Open-mindedness*. Retrieved from https://www.authentichappiness.sas.upenn.edu/newsletters/authentichappinesscoaching/open-mindedness

Uhry, J. K., & Clark, D. B. (2004). *Dyslexia theory and practice of instruction.* Austin, TX: Pro-Ed.

van Wilgenburg, E., & Elgar, M. A. (2013). Confirmation bias in studies of nestmate recognition: a cautionary note for research into the behaviour of animals. *PloS One, 8*(1), e53548. https://doi.org/10.1371/journal.pone.0053548

Vellutino, F. R., & Fletcher, J. M. (2005). Developmental dyslexia. In M. J. Snowling & C. Hulme (Eds.), *The science of reading: A handbook* (pp. 362–378). Oxford, UK: Blackwell Publishing. https://doi.org/10.1002/9780470757642.ch19.

Wadlington, E., Elliot, C., & Kirylo, J. (2008). The dyslexia simulation: Impact and implications. *Literacy Research and Instruction*, *47*, 264–272. doi:10.1080/19388070802300363

Wadlington, E., & Wadlington, P. (2005). What educators really believe about dyslexia. *Reading Improvement*, *42*, 16-32. doi:10.1111/1467-8578-12104

Washburn, E.K., Binks-Cantrell, E.S., Joshi, R.M. (2013) What do preservice teachers
from the USA and the UK know about dyslexia. *Dyslexia, 20*, 1-18.
doi:10.1002/dys.1459

Washburn, E., Joshi, R.M. & Binks-Cantrell (2011a). Teacher knowledge of basic
language concepts and dyslexia. *Dyslexia, 17,* 165-183. doi:10.1002/dys.426

Washburn, E.K., Joshi, R.M., & Binks-Cantrell, E.S. (2011b). Are preservice teachers
prepared to teach struggling readers? *Annals of Dyslexia, 61(1)*, 21-43.
doi:10.1007/s1181-010-0040-y

Williams, J. A., & Lynch, S. A. (2010). Dyslexia: What teachers need to know. *Kappa
Delta Pi Record, 46*(2), 66–70.
http://dx.doi.org/10.1080/00228958.2010.10516696

Wilson Language Training. (n.d.). *Wilson reading system*. Retrieved from
https://www.wilsonlanguage.com/programs/wilson-reading-system/

Wolf, M. (1997). A provisional, integrative account of phonological and naming-speed
deficits in dyslexia: Implications for diagnosis and intervention. In B. Blanchman
et al., (Eds.). *Foundations of reading acquisition and dyslexia: Implications for
early interventions* (pp. 67–92). Mahwah, NJ: Erlbaum.

Worthy, J., Dejulio, S., Svrcek, N., Villarreal, D., Derbyshire, C., Leekeenan, K., . . . &
Salmerón, C. (2016). Teachers understandings, perspectives, and experiences of
dyslexia. *Literacy Research: Theory, Method, and Practice, 65*(1).
doi:10.1177/2381336916661529.

Yalçinkaya, F., & Keith, R. (2008). Understanding auditory processing disorders. *The Turkish Journal of Pediatrics*, *50*(2), 101–105. doi:10.1590/S2317-17822013000300004

The Yale Center for Dyslexia and Creativity. (2017) *Dyslexia FAQ*. Retrieved from: http://dyslexia.yale.edu/dyslexia/dyslexia-faq/

Yıldız, M., Yıldırım, K., Ateş, S., & Rasinsky, T. (2012). Perceptions of Turkish parents with children identified as dyslexic about the problems that they and their children experience, *Reading Psychology, 33*(5), 399-422. https://doi.org/10.1080/02702711.2010.515907

Youman, M., & Mather, N. (2018). Dyslexia laws in the USA: An update. *Perspectives on Language and Literacy, 44*(2), 37-41. doi:10.1007/s11881-012-0076-2

APPENDIX

APPENDIX A

CITI Training Certificate

CITI PROGRAM

Completion Date 18-Sep-2017
Expiration Date 17-Sep-2020
Record ID 24663789

This is to certify that:

Malissa Childers

Has completed the following CITI Program course:

Human Subjects Research (HSR) (Curriculum Group)
COEBS Graduate Students (Course Learner Group)
1 - Basic Course (Stage)

Under requirements set by:

Houston Baptist University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?wb3775404-a323-4d97-8daa-995ac9edaa37-24663789

APPENDIX B

Internal Review Board Approval

Date: August 7, 2018
To: Malissa Childers
From: Institutional Review Board Committee
RE: Notification of IRB Action

Protocol Title: Exploring Teachers' Knowledge and Professional
Development on Recognizing Characteristics of Dyslexia in Students in the
General Education Classroom

_____

This memorandum is notification that the project referenced above has been reviewed
and APPROVED as indicated in Federal regulatory statutes 45CFR46. This approval
expires August 7, 2019.

PLEASE NOTE:
Upon Approval, the research team is responsible for conducting the research as stated in
the exempt application reviewed by the IRB which shall include using the most recently
submitted Informed Consent/Assent Forms (Information Sheet) and recruitment
materials.

Any changes to the application may cause this project to require a different level of
committee review.
Should any changes need to be made, please submit a Modification Form.

Taiya Fabre
Dr. Taiya Fabre
Chair, Institutional Review Board Committee

APPENDIX C

Survey and Interview Questions

Part I- Participants' Demographic Questions

Please answer each question.

	Identification number:	
1	What is your gender?	1) Male 2) Female
2	What is your race?	1) American Indian or Alaskan Native 2) Asian 3) Black or African America 4) Native Hawaiian or Pacific Islander 5) White
3	How many years have you been teaching?	1) 1st year 2) 2-5 years 3) 11-15 years 4) 16-20 years 5) 21+ years
4	What is your highest degree obtained?	1) Bachelor's 2) Masters 3) Doctorate
5	What is your age group?	1) 21-30 years 2) 31-40 years 3) 41-50 years 4) 50+ years

6	Did you receive your teaching certification through an alternative certification program?	1) Yes 2) No
7	What are your certifications?	
8	What grade are you currently teaching?	
9	What grade levels have you previously taught?	
10	How many students with dyslexia have you taught?	

Part II – Dyslexia Knowledge Electronic Survey

Please choose the correct answer below.

1. Dyslexia refers to:
   A. A difficulty with letter and/or number reversals
   B. A difficulty with written language
   C. A difficulty learning the sequences of letters, syllable or numbers
   D. Both a. and c.
   E. Don't know

2. Dyslexia is characterized by difficulty at:
   A. Text level
   B. Sentence level
   C. Word level
   D. All the above
   E. Don't know

	True	False	I Don't Know
3. Dyslexia is not heritable			
4. Difficulties with fluency and automaticity are common in dyslexia			
5. A person who is dyslexic is more likely to have ADHD, dyspraxia and/or specific language impairment than a non-dyslexic person			
6. A dyslexic person is likely to have an excellent auditory working memory			
7. There is a general consensus that difficulty with phonological coding is the core deficit in dyslexia			
8. Multi-sensory teaching methods are considered to be particularly helpful to dyslexic pupils			

Gwernan-Jones, R., & Burden, R. L. (2010). Are they just lazy? Student teachers' attitudes about dyslexia. *Dyslexia: An International Journal of Research and Practice, 16*(1), 66–86. doi:10.1002/dys.393

Semi-Structured Interview Questions

Dyslexia Knowledge and Professional Development

1. Please tell me what you know about children with dyslexia and your understanding of dyslexia?[1]
2. What is your definition of dyslexia?[1]
3. Please describe any pre-service training you have received to prepare you for teaching students with dyslexia.
4. What type of support do you believe is necessary to successfully provide instructions to students with dyslexia in general education classrooms? Why?
5. Please describe how your teaching experience have developed attitudes about dyslexia.[1][2]

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[1] Gwernan-Jones, R., & Burden, R. L. (2010). Are they just lazy? Student teachers' attitudes about dyslexia. *Dyslexia: An International Journal of Research and Practice*, *16*(1), 66-86. doi:10.1002/dys.393

2 Aladwani, A. M., & Al Shave, S. S. (2012). Primary school teachers' knowledge and awareness of dyslexia in Kuwaiti students. *Education*, *132*(2), 499-516. Retrieved from http://www.projectinnovation.biz/index.html

APPENDIX D

Informed Consent Electronic Survey Form

Teachers Perceptions of Knowledge and Professional Development Regarding Recognizing Characteristics of Dyslexia in Students in the General Education Classroom

What is the study about? You are invited to participate in a research study being conducted for a dissertation at Houston Baptist University in Houston, Texas. The study is interested in exploring how you view your ability to recognize characteristics of dyslexia in students in the general education classroom based on your knowledge and professional development. You were selected because you responded to an email about the study. There is no deception in this study.

What will be asked of me? You will answer questions in the form of an electronic survey. There will be some questions about you personally such as your age, gender, highest level of qualification, and grade taught. There will also be questions about what you know about dyslexia and how you view your ability to recognize students with dyslexia in the general education classroom. It will take approximately 20 minutes of your time.

Who is involved? The following people are involved in this research project and may be contacted at any time: Malissa Childers – childersm@hbu.edu or Dr. John Spoede-jspoede@hbu.edu.

Are there any risks? Although there are no known risks in this study, some of the questions might be personally sensitive since some of the questions ask about your feelings regarding dyslexia. You may stop the study at any time during the interview if you feel uncomfortable. You can also choose not to answer any question that you do not feel comfortable answering.

What are some benefits? There are no direct benefits for participating in this electronic survey. The results will have scientific interest that may eventually have benefits for people who teach students with dyslexia.

Is the study anonymous/confidential? The data collected in this study is confidential. Your name or personal information is not linked to data. Only the researchers in this study will see the data.

Can I stop participating in the study? You have the right to withdraw from the study at any time without penalty. You can choose to refuse to answer any questions during the interview if you do not want to answer them.

If you have any questions regarding the study, please contact: Malissa Childers at 832-875-8692 or childersm@hbu.edu or Dr. John Spoede at jspoede@hbu.edu.

What if I have questions about my rights as a research participant or complaints? If you have questions about your rights as a research participant, any complaints about your participation in the research study, or any problems that occurred in the study, please contact the researchers identified in the consent form. Alternatively, if you prefer to talk to someone outside the study team, you can contact Houston Baptist University's Institutional Review Board.

Signatures

I have read the above description for the *Teachers Perceptions of Knowledge and Professional Development Regarding Recognizing Characteristics of Dyslexia in Students in the General Education Classroom* study. I understand the nature of the study and my participation requirements. My signature indicates that I agree to participate in the study.

Participant's Name: _____

Participant's Signature: _____

Date: _____

APPENDIX E

Interview Interest Form

**Teachers Perceptions of Knowledge and Professional Development
Regarding Recognizing Characteristics of Dyslexia in Students in the General
Education Classroom**

I am inviting you to participate in an interview for my study, *Teachers Perceptions of Knowledge and Professional Development Regarding Recognizing Characteristics of Dyslexia in Students in the General Education Classroom,* which is the topic of my dissertation for the Doctor of Education Degree in Executive Educational Leadership from Houston Baptist University.

Your participation in completing this questionnaire is voluntary. The purpose of this study will be to describe the perceptions of English-language arts teachers in grades 6-8 regarding their preparation and knowledge on recognizing students with characteristics of dyslexia in the general education classroom. In addition, I will describe teachers' perceptions regarding recommendations for supports to successfully provide instruction to students with characteristics of dyslexia in the general education classroom.

Six interview participants will be chosen by stratified sampling (one teacher from each grade-level) from those who express interest in participating in the interview.

The information collected will be held strictly confidential and no identifiers will be linked to you. The data collected may be published or presented as a compilation of data from several respondents. No specific identifiers of participants will appear on any report. Your participation is greatly appreciated.

Sincerely,

Malissa Childers
Doctoral Student, Executive Educational Leadership, Houston Baptist University

Phone Number: _____

Email Address: _____

APPENDIX F

Informed Consent Interview Form

Teachers Perceptions of Knowledge and Professional Development Regarding Recognizing Characteristics of Dyslexia in Students in the General Education Classroom

What is the study about? You are invited to participate in a research study being conducted for a dissertation at Houston Baptist University in Houston, Texas. The study is interested in exploring how you view your ability to recognize characteristics of dyslexia in students in the general education classroom based on your knowledge and professional development. You were selected because you responded to an email about the study. There is no deception in this study.

What will be asked of me? You will be interviewed by the researcher. There will be some questions about you personally such as your age, gender, highest level of qualification, and grade taught. There will also be questions about what you know about dyslexia and how you view your ability to recognize students with dyslexia in the general education classroom. It will take approximately 15 minutes of your time.

Who is involved? The following people are involved in this research project and may be contacted at any time: Malissa Childers – childersm@hbu.edu or Dr. John Spoede- jspoede@hbu.edu.

Are there any risks? Although there are no known risks in this study, some of the questions might be personally sensitive since some of the questions ask about your feelings regarding dyslexia. You may stop the study at any time during the interview if you feel uncomfortable. You can also choose not to answer any question that you do not feel comfortable answering.

What are some benefits? The results will have scientific interest that may eventually have benefits for people who teach students with dyslexia.

Is the study anonymous/confidential? The data collected in this study is confidential. Your name or personal information is not linked to data. Only the researchers in this study will see the data.

Can I stop participating in the study? You have the right to withdraw from the study at any time without penalty. You can choose to refuse to answer any questions during the interview if you do not want to answer them.

If you have any questions regarding the study, please contact: Malissa Childers at 832-875-8692 or childersm@hbu.edu or Dr. John Spoede at jspoede@hbu.edu.

What if I have questions about my rights as a research participant or complaints? If you have questions about your rights as a research participant, any complaints about your participation in the research study, or any problems that occurred in the study, please contact the researchers identified in the consent form. Alternatively, if you prefer to talk
to someone outside the study team, you can contact Houston Baptist University's Institutional Review Board.

Signatures

I have read the above description for the *Teachers Perceptions of Knowledge and Professional Development Regarding Recognizing Characteristics of Dyslexia in Students in the General Education Classroom* study. I understand the nature of the study and my participation requirements. My signature indicates that I agree to participate in the study.

Participant's Name: _____

Participant's Signature: _____

Date: _____

APPENDIX G

School District Consent Letter

Dear Ms. Childers,

The ████████████ School District review committee has met to consider your application for research in our district entitled "***Exploring Teachers Knowledge and Professional Development on Recognizing Characteristics of Dyslexia in Students in the General Classroom***."

I am happy to inform you that the committee has chosen to conditionally approve participation in your study. *However, if any changes are made to your study, please notify our office immediately*.

The following conditions will apply to this research:

- Researcher is approved to conduct research at ████████████ and ████████████ only. Researcher must limit using teacher time on this study.
- The researcher is approved to utilize only the approved instruments - survey and interview questions.
- Researcher has permission to audiotape the interviews.
- Researcher must remove the gift card for participation from the study.
- Removal of ████████ from all published information is required.
- The planning for and implementation of the research must be collaborative between the researcher and campus principals to maintain confidentiality.
- The first question for the interview questions needs to be reworded by adding an "and" statement between *with dyslexia* and *your understanding*...

We appreciate your interest and consideration of our district and wish you the very best in your endeavors. When your research is complete, please send a copy of the results to my office by August 2019.

Sincerely,

████████████████

Executive Director for Research, Assessment, and Accountability