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Struggling Readers and Dyslexic Readers: A Comparative Study of Student Intervention Files

By
Katherine Casey Spengler

Claremont Graduate University and San Diego State University
2020

STRUGGLING AND DYSLEXIC READER INTERVENTION FILES

Approval of the Dissertation Committee

This dissertation has been duly read, reviewed, and critiqued by the Committee listed below, which hereby approves the manuscript of Katherine Casey Spengler as fulfilling the scope and quality requirements for meriting the degree of Doctor of Philosophy in Education.

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STRUGGLING AND DYSLEXIC READER INTERVENTION FILES

Abstract

Struggling Readers and Dyslexic Readers: A Comparative Study of Student Intervention Files

By

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This qualitative study framed in the Simple View of Reading (Gough & Tunmer, 1986; Hoover & Gough, 1990) examined similarities and differences between students labeled struggling readers and those labeled students with or at risk for dyslexia. The study utilized document analysis to analyze the clinical reading intervention files of 44 students, kindergarten through grade 3, from two afterschool literacy clinics, an urban, community-based clinic and a suburban, private clinic. Document analysis of the files of 21 students with or at risk for dyslexia and 23 struggling readers provided data for thematic analysis of the labels used to describe readers in need of clinical intervention and comparative content analysis of the reasons parents sought clinical reading intervention, reading comprehension levels, language comprehension levels, phonological awareness skills, decoding skills (including sight word recognition, decoding, and fluency), and encoding skills.

Content analysis of parent responses to multiple-choice prompts found all parents sought clinical reading intervention because of their children's struggles with decoding. In addition, one-quarter sought support for comprehension. Thematic analysis of open-ended prompts revealed three themes: concern about children's academic decline despite their effort to learn and the parents' effort to support them; concerns about children's mental health; and, concerns about children's deteriorating attitudes toward reading.

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Content analysis of assessment data, clinician notes, and parent and teacher comments indicated a number of similarities in the patterns in the reading behaviors of struggling readers and dyslexic readers. These patterns were evident in both factors that affect reading comprehension, namely linguistic comprehension and word recognition skills. There were identifiable differences that distinguished dyslexic readers from struggling readers in the areas of phonemic awareness and spelling errors. The findings of this research study amplify the importance of using a universal screener in kindergarten and first grade to identify at-risk students.

Findings suggest implications for professional development for kindergarten to grade 3 teachers on several topics. Also, findings suggest future research on the combination of the students' phoneme segmentation deficiencies coupled with their encoding errors is important to understand differences between dyslexic and struggling readers.

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Dedication

For our daughter, Anna,
who taught me what I did not know about teaching reading
and sparked my passion for dyslexia research.
Her determination and perseverance inspires me every day.

For my husband, Joel,
for the sacrifices he makes for our family,
for saying yes every time I needed time to pursue my doctoral dream, and
for his utter belief in my ability to accomplish my goals.

Acknowledgements

With deep appreciation, I want to acknowledge the faculty of Claremont Graduate University (CGU) and San Diego State University (SDSU) for working collaboratively to provide an intellectually challenging joint doctoral program. I am grateful to Dr. Marva Cappello, my advisor at SDSU, for her encouragement throughout the program, from our initial meeting when I asked if I would be a good match for the program, to advising me on one of my qualifying exams, to checking on my progress throughout the dissertation writing process.

I thank my co-chairs, Dr. Nancy Frey (SDSU) and Dr. DeLacy Ganley (CGU), for their professional generosity and their belief in me and in this study. I have long admired Dr. Frey's exquisitely well-written contributions to the field of education and relished receiving her feedback on my writing and research. Dr. Ganley's ability to ask probing questions helped me consider the implications of the study from multiple vantage points and strengthened my analysis. I am thankful as well to my committee members Dr. Diane Lapp (SDSU) for encouraging me to engage in a comparative study and Dr. Tom Luschei (CGU) for preparing me for the dissertation writing process by recommending the use of mentor dissertations and the establishment a peer group to stay accountable to deadlines.

This research study would not have been possible without access to afterschool clinical intervention files. Special thanks to the directors of the private literacy clinic and the community-based clinic. My hope is for this research to benefit both clinics as well as general education classroom teachers who have the responsibility of teaching all students how to read.

Finally, I thank Dr. Lynne Thrope for inspiring me to pursue a doctorate and for being by my side every step of the way. Look, Dr. Lynne, I made a hat, where there never was a hat. It's a doctoral hat, at that!

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Chapter 1: Introduction

Only 35% of students in the United States read at a proficient level (McFarland et al., 2019). For over a century, debate about approaches to instruction (Pearson, 2004) has shaped reading instruction and attempts to address persistent reading underachievement (Balu et al., 2015). Reading underachievement stems from a host of factors. Some factors are environmental. Lack of exposure to language, early literacy activities, and literacy-rich preschool experiences, for example, affect a child's early language knowledge prior to beginning school (Davis, Lindo, & Compton, 2007). Lack of access to quality core reading instruction provided in the general education classroom (Mathes et al., 2005) affects a child's reading development in school. Environmental factors can position a student to be at risk for reading failure. An at-risk student is one who requires temporary or ongoing intervention to succeed academically (U.S. Department of Education, 2018). Being labeled at-risk does not mean the student is destined to become a poor reader; instead, it indicates the student has risk factors that may need especially close monitoring and prompt intervention to prevent reading difficulties from presenting.

Other reading underachievement factors are neurobiological. For an estimated 6%-17% of the population (Fletcher, 2009) a specific learning disability that is neurobiological in origin (International Dyslexia Association, 2002) called dyslexia is a factor. Dyslexia is defined as difficulty in developing word-level reading skills despite adequate instructional opportunities (Fletcher, Lyon, Fuchs, & Barnes, 2007; Hulme & Snowling, 2009; Kilpatrick, 2015; Velluntino, Fletcher, Snowling, & Scanlon, 2004). The term *at risk for dyslexia* is applied to children who are demonstrating strong indicators of dyslexia prior to or during the beginning stages of learning to read (Lyon, Shaywitz, & Shaywitz, 2003). Again, the term *at risk for dyslexia* does not mean

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the child is destined to be diagnosed with dyslexia; rather, it indicates the presences of factors or behaviors that indicate the child may need early and ample intervention to learn to read.

Just as there is debate about what constitutes effective reading instruction (Kim, 2008; Pearson, 2004), there is debate about the existence (Pennington, Gilger, Olsen, & DeFries, 1992) and utility of dyslexia (Elliott & Grigorenko, 2014; International Literacy Association, 2016; Stanovich, 1994). Certainly, no one debates that there are children who lag behind in reading development and read markedly below their peers on standardized measures of reading achievement. Yet one aspect of the dyslexia debate stems from "whether reading disability is just the lower tail of the multifactorially determined, normal distribution of reading skill, or whether some cases of reading disability represent an etiologically distinct disorder" (Pennington et al., 1992, p. 562). In particular, some argue the term dyslexia carries with it so many empirically unverified connotations and assumptions that researchers and practitioners would be wise to avoid the term (Stanovich, 1994). Elliott and Grigorenko (2014) argue there is no evidence at a scientific level that different kinds of poor readers differ in terms of the underlying cognitive deficits or neural basis. At a practical level, they assert that the use of the term dyslexia and the effort to distinguish dyslexic children from other struggling readers does more harm than good overall: spending precious resources separating dyslexic children from other struggling readers is wasteful and should be discontinued (Elliott & Grigorenko, 2014).

Another aspect of the dyslexia debate stems from whether the existing protections outlined in the Individuals with Disabilities in Education Act (IDEA; 2004) are sufficient for students with specific learning disabilities in reading, which include students with dyslexia. Dyslexia advocates argue that procedures for dyslexia screening and intervention, dyslexia training and professional development for classroom teachers, dyslexia education in teacher

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training programs, and additional funding for dyslexia interventions are needed. In recent years, dyslexia advocates in 42 states across the United States have successfully enacted dyslexia legislation, and with over half of the states requiring the provision of dyslexia screening and early intervention specific to the needs of dyslexic readers (Youman & Mather, 2018). As a result, the reading wars and dyslexia debate are intensifying (International Literacy Association, 2016; International Dyslexia Association, 2016) as is the realization that many classroom teachers feel unprepared to meet the needs of dyslexic readers (Worthy et al., 2016). The debates complicate rather than clarify what at-risk readers need.

What matters for at-risk readers is access to early intervention (Fletcher et al., 2005; Lovett et al., 2017; Torgesen, 2004) from teachers with the expertise and resources to teach early literacy effectively, and who respond when students do not develop literacy skills as expected (International Literacy Association, 2016). Early intervention is vital because the degree of success in becoming a proficient reader is typically established in the early grades (Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1996; Juel, 1988; Torgesen & Burgess, 1998). Without intervention, an at-risk reader almost invariably continues to read below grade level expectations (Torgesen & Burgess, 1998). In contrast, when at-risk beginning readers receive intensive instruction, 56% to 92% of at-risk readers across six studies reached the range of average reading ability (Torgesen, 2004). Kindergarten (Cavanaugh, Kim, Wanzek, & Vaughn, 2004; Wanzek & Vaughn, 2007) and first grade (Hines, 2009; Jenkins, Peyton, Sanders, & Vadasy, 2004; Pullen, Lane, Lloyd, Nowak, & Ryals, 2005) are crucial times either to receive intensive instruction from the general education teacher or be referred by the teacher for reading intervention (Wanzek et al., 2013).

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To access early reading intervention, a student must be identified as needing early intervention. To serve at-risk students, at least some classrooms in 70% of United States school districts (Balu et al., 2015) utilize Response to Intervention (RTI), a multilevel prevention system encouraged by the reauthorization of the Individuals with Disabilities Education Improvement Act (IDEA, 2004). Typically, an RTI system utilizes three tiers of instruction (RTI Action Network, n.d.). Through Tier 1 instruction, all students are meant to receive high-quality classroom instruction, are screened periodically to ensure they are progressing academically, and are provided additional small group intervention in the classroom if they are considered at-risk. Students not making adequate progress with Tier 1 instruction are provided with Tier 2 targeted interventions in addition to Tier 1 interventions. Students who continue to show too little progress at this level of intervention are then considered for more intensive interventions and comprehensive evaluation as part of Tier 3. Some RTI schools use a systematic screening process as early as kindergarten. Other schools rely on classroom-based assessments and teacher recommendation to identify at-risk readers (Woodward & Talbert-Johnson, 2009). The challenges inherent in systemically identifying students in need of early reading intervention are well researched (McAlenney & Coyne, 2011), as are the challenges in identifying students with dyslexia (Worthy et al., 2016), the effects of selected methods of intervention (Fien et al., 2014), and the timing of interventions (Otaiba et al., 2014).

Analyzing assessment data is an expected and essential aspect of effective teaching (National Board for Professional Teaching Standards, 2012). Teaching well requires teachers to analyze and use data to plan and provide instruction that is responsive to what students know and are able to do across the many aspects of literacy learning (Richards, Pavri, Golez, Canges, & Murphy, 2007). Regardless of who is responsible for administering the assessments to at-risk

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students, general education classroom teachers, at the individual or group level, are often tasked with using the assessment data to make decisions regarding which students are in need of interventions (Richards et al., 2007). While there is abundant research documenting that teachers, not programs, are the most powerful in-school influence on student success (e.g., Konstantopoulos & Sun, 2012; Nye, Konstantopoulos, & Hedges, 2004; Tivnan & Hemphill, 2005), there is also research documenting that some teachers have inadequate knowledge of normal development of reading (Bell, 2013; Snowling, Duff, Petrou, Schiffeldrin, & Bailey, 2011), misconceptions about the role phonological awareness plays in reading disabilities (Binks-Cantrell, Joshi, & Washburn, 2012; Washburn, Mulcahy, Musante, & Joshi, 2017), and markers of possible reading disabilities (Fuchs, Fuchs, & Stecker, 2010), including dyslexia (Stanovich, 1988; Washburn, Joshi, & Binks Cantrell, 2011a, 2011b).

For decades, cognitive scientists, neuroscientists, and education researchers have searched for distinctions between learners identified as dyslexic and other students with reading difficulties (Worthy, Svrcek, Daly-Lesch, & Tily, 2018) to identify signature patterns in reading, spelling, brain structure, or brain function unique to dyslexia (Cassar, Treiman, Moats, Pollo, & Kessler, 2005; Ramus & Szenkovits, 2008; Tanaka et al., 2011). This research has led to significant advances in the understanding of reading difficulties in general and dyslexia in particular. However, their research has also done little to stem debate about the causes, nature, and definition of dyslexia.

Despite the lack of a universally agreed upon definition of dyslexia, teachers bear the ultimate responsibility for teaching all of their students to read, including those identified as dyslexic (Worthy et al., 2016). In the classroom, students with dyslexia are not simply collections of deficits or skill gaps; rather, they are children struggling to learn to read in part

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because of lack of fit between their learning needs and their learning environment (Collins & Ferri, 2016). Without knowledge of normal and atypical reading development— and without knowledge of what distinguishes dyslexic readers from struggling readers in general— teachers will continue to overlook that children at risk for dyslexia have urgent needs in the area of phonological processing that affect their ability to learn to decode for meaning and, as a result, need targeted phonological awareness, phonemic awareness, and decoding instruction (Snowling, 2013). There is little qualitative research focused on identifying the similarities and differences between struggling readers and dyslexic readers and whether and how those characteristics are used to inform educators’ intervention and instructional decisions. Thus, research in these areas is needed.

Purpose of the Study

The purpose of this study was to examine the reading characteristics of children in grades K-3 identified either as struggling readers or readers with or at risk for dyslexia in order to describe what, if any, characteristics distinguish readers with dyslexia from struggling readers. Specifically, the purpose was to analyze students’ clinical reading intervention records 1) to determine the labels used to describe readers in need of reading intervention, 2) to identify the similar reading characteristics between these two groups of readers, 3) to identify assessed differences in the reading behaviors between these two groups, and 4) to identify the intervention decisions made based on students’ reading characteristics.

Research Questions

The overarching question guiding this study was: *What reading behaviors distinguish a reader with dyslexia or at risk for dyslexia from those of a struggling reader?* Specifically, the research questions included:

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Research Question 1

What labels are used to describe students in need of reading intervention?

Educators and parents use a range of labels for children who appear to have some form of difficulty with reading. This question provided the categories needed for questions 2 and 3. This question also addressed a gap in the literature by enabling needed exploration (Gibbs & Elliot, 2015) of the types and range of reading problems that educators and parents associate with various labels.

Research Questions 2 and 3

How similar are the decoding and language comprehension skills of students identified as struggling and students identified as dyslexic or at risk for dyslexia? How different are the decoding and language comprehension skills of students identified as struggling and students identified as dyslexic or at risk for dyslexia?

Together, questions 2 and 3 brought to light what distinguished students with dyslexia from struggling readers in their clinical intervention records. These questions addressed a gap in the literature by aiming to provide rich description of the similarities and differences of readers using qualitative methods.

Research Question 4

What interventions do students receive and how do these intervention decisions relate to the students' decoding and language comprehension skills?

Assessment data about a student's reading characteristics should form the basis of an intervention plan (Kilpatrick, 2015). Given that a student's lack of response to instruction is one indicator of the possibility of dyslexia (Petersen, Gragg, & Spencer, 2018; Velluntino & Fletcher, 2008), and that dyslexia's impact on an individual can also be exacerbated by

ineffective instruction (Mathes et al., 2005), this question was included to provide data needed to answer questions 2 and 3.

Definitions of Terms

There are wide-spread definitions of what the term *struggling reader* means and what characteristics qualify a student as a struggling reader. The term struggling reader has been used to include non-specific or “garden-variety” difficulties with learning to read (Stanovich, 1988, p. 584). Allington (2006) suggested that a struggling reader is simply a student who has difficulties learning to read. Often students are considered struggling readers if they score below grade level on standardized tests or fall below grade level on other reading assessment measures (IDEA, 2004; No Child Left Behind Act, 2001). Lapp and Flood (2003) defined struggling readers “as students who are not reading grade-level material with fluency and comprehension” (p.14). This study used Lapp and Flood’s (2003) definition of struggling reader because it implies comprehension is the ultimate goal of learning to read.

Decoding is defined as “the ability to recognize printed words accurately and quickly to efficiently gain access to the appropriate word meanings contained in the internal mental lexicon” (Hoover & Tunmer, 2018, p. 304). Word recognition is accomplished through alphabetic coding, which relates the letter sequences within a given word to the phonological structures underlying its pronunciation, thereby allowing access to the word’s location in the mental lexicon (Hoover & Tunmer, 2018). Accuracy is crucial because incorrect decoding leads to the incorrect definition of a word, which results in divergent understanding of the sentence’s meaning. Quick recognition of words is imperative because cognitive resources are limited; the more cognitive resources are spent decoding, the fewer will be available to focus on comprehension (Hoover & Tunmer, 2018).

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Fluency is defined as reading words accurately and automatically with proper intonation or prosody. Fluent reading is a product of strong decoding, a large bank of sight words, and strong language comprehension. Fluent readers vary their intonation, or prosody, as they read, suggesting the reader comprehends the passage as he or she reads it (Schwanenflugel & Ruston, 2008).

Linguistic comprehension is defined as the ability to take lexical information and derive sentence and discourse interpretations (Hoover & Gough, 1990). Linguistic comprehension is often referred to as language comprehension (Hoover & Tunmer, 2018) or listening comprehension (Hoover & Tunmer, 2018) and the terms will be used interchangeably in this study. The components of linguistic comprehension that appear to influence reading comprehension include vocabulary (semantic knowledge), syntactic-grammatical knowledge, background knowledge, working memory, attention, inferencing, and comprehension monitoring (Kilpatrick, 2015).

Though there is debate about the definition of dyslexia that will be discussed further in Chapter 2, simply defined, *dyslexia* refers to a difficulty in developing word-level reading skills despite adequate instructional opportunities (Fletcher et al., 2007; Hulme & Snowling, 2009; Kilpatrick, 2015; Velluntino et al., 2004).

An at-risk student is one who requires temporary or ongoing intervention to succeed academically (US Dept of Ed, 2018). The term *at risk for reading difficulties* refers to students who are at increased risk for reading failure. At-risk does not mean the student is destined to become a poor reader; instead, it indicates the student has risk factors that may need especially close monitoring and prompt intervention to prevent reading difficulties.

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In this study, the term *at risk for dyslexia* is applied to students who are demonstrating strong indicators of dyslexia prior to or during the beginning stages of learning to read (Lyon et al., 2003). Indicators include impaired phonological awareness (the ability to manipulate the sounds of the language), letter-sound knowledge, rapid automatized naming skills, vocabulary, and language comprehension skills (Petscher et al., 2019). Again, the term *at risk for dyslexia* does not mean the student is destined to be diagnosed with dyslexia; rather, it indicates the student is demonstrating behaviors and factors that indicate the student needs early and ample intervention to learn how to decode. The terms *student with dyslexia* or *dyslexic student* describe a child with a clinical diagnosis of dyslexia.

Significance of the Study

This study aims to contribute practically and theoretically to the current body of research on struggling readers and dyslexic readers. The potential practical significance of this study lies in how it could aid educators in the field, especially general education classroom teachers, identify the characteristics that indicate children in their class may be at risk for dyslexia and, therefore, in need of early intervention. The findings could offer educators using the RTI multilevel system of support insight into how to track early literacy development, how to determine the types of first best instruction (Tier 1 instruction) and intervention (Tiers 2 and 3) and the duration of the intervention needed by readers with, or at risk for, dyslexia. In a practical way, this research could also provide some insight into why some reading interventions for struggling readers are more effective than others.

Most of the literature on dyslexia emphasizes or synthesizes quantitative findings, with far fewer qualitative studies, and none that endeavor to identify the characteristics that distinguish dyslexic readers from struggling readers using documents contained in student

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clinical intervention files. The theoretical significance of this study could be to contribute to the scholarly knowledge base on struggling readers.

Organization of the Dissertation

The organization of this dissertation is as follows. Chapter 1 provided an introduction to the statement of the problem and purpose of the study. Chapter 2 consists of a review of research relating to: reading development in typically developing readers; the theoretical framework for the study; reading development in atypically progressing young readers, including the labels used to describe them; dyslexia; teacher knowledge of reading development and dyslexia; and, the effect of recent dyslexia legislation requiring dyslexia screening and intervention. Chapter 2 ends with a discussion of the legislative and empirical rationale for early identification of reading difficulties, including dyslexia. Chapter 3 provides an in-depth description of the research design, the sample selected to be included in the instrumental case study, the document analysis techniques, limitations of the study, and researcher positionality. Chapter 4 contains the findings reported by research question and analysis of the findings. Discussion and conclusions follow in Chapter 5.

Chapter 2: Literature Review

The objective of this literature review is to: 1) provide a brief primer on reading development in typically progressing young readers; 2) introduce the Simple View of Reading (Gough & Tunmer, 1986; Hoover & Gough, 1990); 3) provide a brief primer on reading development in atypically progressing young readers, including a discussion of the labels used to describe them; 4) provide a brief primer on dyslexia; 5) explore teacher knowledge of reading development and dyslexia; 6) examine the effect of recent dyslexia legislation requiring dyslexia screening and intervention; and, 7) present the legislative and empirical rationale for early identification of reading difficulties, including dyslexia. The objective of this literature review is also to establish the gaps in the research that motivated this study.

Reading Development

Reading for understanding is the ultimate goal of reading. To be able to comprehend – to understand and interpret the meaning of what is read – young children need to recognize the words in the text and connect the words to vocabulary learned through oral language. What follows is a brief explanation of each of the specific skills beginning readers are required to develop as they learn to read.

Phonological Awareness

Though some think learning to read begins with teaching children the names of letters and the sounds those letters represent, learning to read is actually a process that begins at birth, as children learn to understand and use language, connecting the sounds they hear and produce, to meaning. By being immersed in oral language, typically developing children begin to tune into the sounds of spoken words. This tuning into sounds is called phonological awareness.

Phonological awareness refers to an awareness of the sound structures of speech and the ability

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to manipulate those structures. This awareness develops orally, without reference to print, and there is a hierarchy of understandings that must be mastered at the foundational level (Treiman & Zukowski, 1991). Children learn to recognize that oral sentences are comprised of words and that words are comprised of syllables. They learn to recognize rhymes by sound (e.g., *fat, cat, sat*) and alliterations (e.g., *Sally sells seashells*) and later, learn to generate rhymes and alliterations. They develop more advanced phonological awareness such as onset-rime awareness. In words that have onsets, the onset is the consonant(s) before the vowel and the rime is vowel and the consonant(s) that come after the vowel. For example, in the word *sun*, the onset is /s/ and the rime is /un/. (A note about notation: a letter between slash marks represents the phoneme, or sound, the letter represents, not the name of the letter. For example, the letter *v* represents the sound /v/). Phonological awareness is critical for developing phonemic awareness and learning to read any alphabetic writing system (Ehri, 2004; Troia, 2004). Phonological manipulation tasks such as deleting, substituting, or reversing sounds in spoken languages have been found to be the best predictors of word-level proficiency (Caravolas et al., 2005; Kilpatrick, 2012a, 2012b).

Phonemic Awareness

Phonemic awareness is usually the last of the phonological awareness skills to develop. A phoneme is a speech sound. A phoneme is the smallest unit of language and has no inherent meaning. For example, the word *sun* has three sounds, /s/, /u/, and /n/. Phonemic awareness refers to the ability to hear and manipulate the sounds in spoken words, and to the understanding that spoken words and syllables are made up of sequences of speech sounds (Yopp, 1992). The ability to recognize that words are comprised of discrete sounds and that these sounds can be changed is essential to success in learning to read (Cunningham, Cunningham, Hoffman, & Yopp, 1998; Lundberg, Frost, & Petersen, 1998). In fact, the degree of phonemic awareness that

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a child has developed upon entry into school is widely held to be the strongest single determinant of the child's reading success (Adams, 1990; Snow, Burns & Griffin, 1998; Stanovich, 1988).

When children develop phonemic awareness, they can manipulate the phonemes in words and syllables. Two crucial phonemic awareness skills are segmenting and blending. Segmenting means breaking a word into its individual sounds. For example, the word *ship* segments into three phonemes, or sounds, /sh/ /i/ /p/. Knowledge of segmenting words is a predictor of success in reading (Gillet & Temple, 1990). Blending involves saying the word after each of its sounds are heard. For example, the phonemes /c/ /l/ /a/ /p/ blend to form the word *clap*. For some children, learning to segment the sounds in spoken words and then reconstitute the sounds is challenging (O'Connor, Notari-Syverson, & Vadasy, 1996). However, it is this aspect of phonemic awareness that enables children to apply their knowledge of sound-letter relations to the sounding out of printed words (Smith, Simmons, & Kameenui, 1998). Advanced phonemic awareness skills involve phoneme manipulation which includes phoneme deletion (e.g., say *tape* without the /t/, which is *ape*), addition (e.g., say *pit* but add /s/ to the beginning, which is *spit*), substitution (e.g., say *mop* but change the /o/ to /a/, which is *map*), and reversal (e.g., say *back* but change the first sound to the last sound, which is *cab*). Phoneme awareness is necessary to understand the alphabetic principle, because letters are designed to represent spoken phonemes.

Alphabetic Principle

English uses an alphabetic writing system in which the 26 letters, singly and in combination, represent single speech sounds. There are 26 upper and lower case English letters that represent approximately 44 sounds. The alphabetic principle refers to the insight that the oral sounds (phonemes) in spoken words are represented by letters (graphemes) in print. A child's ability to think about individual words as sequences of sounds is important to his or her

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understanding of the alphabetic principle (Liberman & Shankweiler, 1985; Snow et al., 1998). Weak phonological awareness skills in general, and phoneme segmentation skill in particular, impair a developing reader's understanding of the alphabetic principle (Liberman & Shankweiler, 1985; Snow et al., 1998). Children who can take apart words into sounds, recognize their identity, and put them together again have the foundation skill for using the alphabetic principle (Liberman, Shankweiler, & Liberman, 1989; Troia, 2004). Without that phoneme awareness, children may be mystified by the print system and how letters represent sounds in words. Some children appear to figure out the alphabetic principle almost effortlessly, with little or no instruction. However, most children benefit from organized instruction that centers on sounds, letters, and the relations between sounds and letters (Perfetti & Zhang, 1995). Children must become expert users of the letters they will see and use to write their own words and messages (Lyon, 1998). Children's knowledge of letters, both letter names and letter sounds, is a strong predictor of their success in learning to read (Adams, 1990).

Phonics

The term phonics refers to the system of instruction used to teach children the connection between letters and sounds (Snow et al., 1998). The goal of phonics instruction for young children is to help children learn to use the alphabetic principle to read words. Learning that there are predictable relationships between letters and sounds enables children to apply the relationships to decode and encode words. Therefore, effective phonics instruction should include ample opportunities for children to transfer their phonics skills to writing, or encoding words (Blevins, 2016).

Decoding. Decoding refers to the process of using letter-sound correspondences to recognize words. For example, knowing the letters *s*, *a*, and *t* represent the sounds /s/ /a/ and /t/

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helps the child decode the word *sat*. Phonics instruction typically begins with regular word reading. A regular word is a word in which all letters represent their most common sounds, making it possible to decode the word. Irregular words are words that cannot be decoded for one of two reasons: the sounds of the letters are unique to that word or a few words (e.g., *said* or *was*) or the student has not yet learned the letter-sound correspondences in the word (e.g. a kindergartener trying to read the word *night*) (Carnine, Silbert & Kame'enui, 1997).

The progression of phonics instruction for beginning readers typically includes instruction on: letter-sound correspondence, which means the 44 sounds the 26 letters represent; digraphs and trigraphs, which are combinations of two or three consonants representing one sound, such as *ch* and *tch* representing the sound /ch/; blends, which are combinations of two or three consonants in which the sounds of each consonant can be heard at the beginning or end of a word, such as *bl* in *black* and *sk* in *task*; vowel teams, which is a vowel sound spelled with two vowels, such as /ē/ spelled *ee*; and word families, which are groups of words that share a common feature or pattern, such as the /ump/ word family *ump*, *clump*, *bump*, *jump*, and *dump*.

As students develop and practice their decoding skills, they develop an increasingly large bank of sight words. A word becomes a sight word when it no longer needs to be sounded out or guessed. Sight words are words that are instantly recognized by the reader whether it is phonetically regular (e.g., *sun*, *think*) or irregular (e.g., *bought*, *some*) (Kilpatrick, 2015). Typically developing readers are able to store a new word permanently in only one to four exposures from second grade forward (Castles & Nation, 2006; Share, 1999).

Encoding. The progression of phonics instruction also typically includes encoding instruction. Encoding is the process of hearing a sound and being able to write a symbol to represent a sound. For example, if a child hears the sound /m/ and then writes the letter *m*, it

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means the child is able to encode this sound. Encoding also involves hearing a whole word and then being able to write down the whole word with the correct spelling. Early readers spell, or encode, by segmenting spoken words into phonemes (sounds) and assigning graphemes (letters) to the sounds (Ehri, 1986, 2015). Learning to encode and learning to decode rely on much of the same underlying phonological and phonemic awareness, or letter-sound knowledge (Adams, 1990; Blachman, Ball, Black, & Tangel, 1994, 2000; Snow, Burns, & Griffin, 1998), and encoding instruction can be designed to help children better understand that key knowledge (Ehri, 2000).

For example, Blachman et al. (1994) studied the effectiveness of phonological awareness instruction for 84 kindergarten students. The students completed 41 phoneme awareness lessons of 15 to 20 minutes in duration over 11 weeks. The lessons consisted of phoneme segmentation activities and letter name and letter sound training. Results indicated the students performed significantly better than the control group ($N = 75$) on phoneme segmentation, letter name knowledge, and letter sound knowledge. In addition, the students read significantly more phonetically regular real words and earned significantly more points on a developmental spelling test than the control group. A recent study conducted by Treiman, Hulslander, Olson, Willcutt and Byrne (2019) examined the predictive value of early spelling on later reading performance. They analyzed spelling data from 970 students assessed in the summer after kindergarten. A letter distance score for each spelling was calculated (Levenshtein, 1965) to determine the distance between the student's spelling and the conventional spelling. In addition, students were administered the *Sight Word Reading Efficiency* subtest of *Test of Word Reading Efficiency* (Torgesen, Wagner, & Rashotte, 1999) and a phonological awareness assessment from the *Comprehensive Test of Phonological Awareness* (Wagner, Torgesen, & Rashotte, 1999). The

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study found by the end of kindergarten, spelling is more than a proxy for phonological knowledge: it is a significant predictor of later reading performance (Treiman et al., 2019).

Fluency

Fluent reading is a product of strong decoding, a large bank of sight words, and strong language comprehension. The term fluency refers to reading words accurately and automatically with proper intonation or prosody. Fluent readers vary their intonation, or prosody, as they read, suggesting the reader comprehends the passage as he or she reads it (Schwanenflugel & Ruston, 2008). A longitudinal study that tracked students from first to third grade found early phonic knowledge had a direct causal effect on word recognition development, and word recognition development had a direct causal effect on word-reading fluency (Eldredge, 2005). In contrast, less fluent readers must focus their attention on figuring out the words. Any effort devoted to reading unfamiliar words compromises the amount of working memory available for comprehension (Nation, 2005), leaving readers little attention for understanding the text, and slowing down their rates of reading. Torgeson, Rashotte, Alexander, Alexander and MacPhee (2003) found “the most important key to fluent reading of any text is the ability to automatically recognize almost all of the words in the text” (p. 293).

Vocabulary

Vocabulary knowledge is fundamental in the reading process and is critical to reading comprehension (National Institute of Child Health and Human Development, 2000). After all, a reader cannot understand a text without knowing what most of the words in the text mean. A beginning reader who is able to decode the word to speech sounds will be able to understand the word if the word is in the reader's listening or oral vocabularies. The larger the beginning reader's listening and oral vocabularies, the easier it is to for the reader to make sense of the text. For

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example, a child trying to figure out the sounds represented by the letters *c*, *u*, and *p* will recognize that the sounds make up the familiar word *cup*, a word that she has heard and said many times. If the word is not in the beginning reader's listening or oral vocabularies, the reader will have to determine the meaning by other means, such as looking at pictures in the text. As children read more advanced texts with unfamiliar vocabulary, they learn to determine the meaning through context clues or word analysis. Growth in reading power means continuous growth in word knowledge, a finding researchers noted as early as 1924 (Whipple, 1925). Vocabulary is arguably the biggest factor affecting the reading comprehension of many English Language Learners (Farnia & Geva, 2013) and can affect the reading comprehension of native English speaking children, too (Catts, Adlof, & Weismer, 2006).

Comprehension

Comprehension is the ultimate goal of reading. Reading comprehension includes “the process of simultaneously extracting and constructing meaning through interaction and involvement with written language” (Snow, 2002, xiii), as well as the “capacities, abilities, knowledge, and experiences” one brings to the reading situation (p. 11). Reading comprehension ability is complex and multifaceted; it is comprised of understanding a text’s vocabulary, knowledge of the particular topic, and comprehension of its language structures (Cain & Oakhill, 2007).

As evidenced in the reading development primer above, learning to read is a multifactorial process, and many theoretical models have been developed to explain the processes involved with achieving comprehension. The bottom-up model (Flesh, 1955; Gough, 1984) emphasizes a part-to-whole processing of a text. This model sees reading as a serial process of learning the alphabetic principle and letter-by-letter decoding. Meaning of the text is

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expected to result once the code is broken. The top-down model involves readers constructing meaning from whole text to the part (Goodman, 1967; Smith, 1971). Comprehension begins in the mind of the reader, who already has some ideas about the meaning of the text. Readers identify words and letters only to confirm their assumptions about the meaning of the text. The Interactive Reading Model (Rumelhart, 1977) suggests the reader constructs meaning by the selective use of information from all sources of meaning (graphemic, phonemic, morphemic, syntax, semantics) without adherence to any one set order. The reader simultaneously uses all levels of processing even though one source of meaning can be primary at a given time (Block, 1992; Klein, Peterson, & Simington, 1991). The Interactive-Compensatory Model of Reading adds the “compensatory assumption” (Stanovich, 1980), which is the assumption that deficiencies at any level in the processing hierarchy can be compensated for by a greater use of information from other levels, and that this compensation occurs irrespective of the level of the deficient process (Stanovich, 1984).

The Simple View of Reading

One model that identifies comprehension as the primary purpose of reading and provides a theoretical framework for this study is the Simple View of Reading (SVR; Gough & Tunmer, 1986; Hoover & Gough, 1990). The SVR provides a strong explanation of what reading is at the broadest level of analysis and is a useful heuristic for thinking about the development of reading comprehension and related skills (Lonigan, Burgess, & Schatschneider, 2018). The SVR illustrates that reading comprehension is accomplished as a result of decoding skills and linguistic comprehension skills. The SVR holds that neither component is sufficient but rather, that skill in both components is necessary to advance. The SVR “does not deny the complexity

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of reading, but asserts that such complexities are restricted to either of the two components” (Hoover & Gough, 1990, p. 23).

The Simple View of Reading (Gough & Tunmer, 1986; Hoover & Gough, 1990)

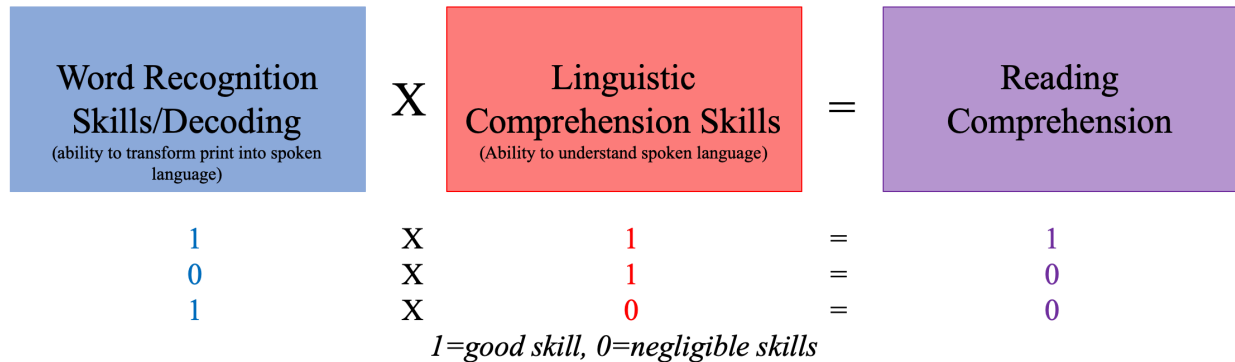


Figure 1. The Simple View of Reading.

The SVR holds two claims (see Figure 1). First, the complexity of reading can be divided into two parts: decoding, defined as efficient word recognition, and linguistic comprehension, defined as the ability to take lexical information and derive sentence and discourse interpretations. Second, decoding (D) and linguistic comprehension (L) are of equal importance and necessary for reading comprehension (R), neither sufficient without the other. In the SVR, reading comprehension is expressed as a multiplicative process $R = D \times L$, rather than an additive process, expressed as $(R = 0.5[D + L])$. Unlike the bottom-up model of the reading process that holds reading is a serial process, with decoding preceding comprehension (Rumelhart, 1977; Stanovich, 1980), the SVR holds decoding in the absence of linguistic comprehension is not reading.

The SVR provides a strong explanation of what reading is at the broadest as well as specific levels. Thirty years since its introduction, the SVR continues to withstand rigorous evaluation (Hoover & Tunmer, 2018; Language and Reading Research Consortium, 2015; Lonigan et al., 2018). There are over 200 direct studies and hundreds of indirect studies of the

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SVR that support it. These direct studies cut across all age ranges, reading levels, disability types, and have involved multiple languages (Catts, 2017; Kilpatrick, 2015). Therefore, in this study, the SVR guided the deductive and inductive document analysis of student assessments to help identify the characteristics of struggling readers and dyslexic readers.

Atypically Developing Readers

When academic differences among students are discovered, their presence is typically marked by various labels (Dudley-Marling, 2011). Over the past 60 years, researchers and educators have used a wide range of terms to describe students who are not reading at the expected proficiency level. From *retarded readers* in the 1960s through the early 1980s (e.g., Neville & Hoffman, 1981), to *disabled readers* (e.g., Ford & Ohlhausen, 1988), to *poor readers* (e.g., Zabrocky & Ratner, 1992), to *problem readers* (e.g., Walker, 2004), researchers and educators have used a wide range of terms and descriptions. Some are official labels, like *identified with a learning disability* (IDEA, 2004). Some gain currency through policies, like *striving readers* (Consolidated Appropriations Act, 2010). Others are unofficial labels, such as *remedial* or *delayed reader*. Still others stem from instructional materials or reading levels, as in the case where teachers refer to students in terms of the leveled books they can read independently (e.g., “she is a level ‘K’ reader”). Dudley-Marling (2011) cautions none of the labels are harmless because they locate the source of the struggle in the individual reader, rather than in the source of the struggle, namely that the activity of learning to read differs for the struggling reader. Dudley-Marling encourages researchers to interrogate the terms used by educators that affect the lives of labeled students. Of particular interest to this study are the terms *struggling reader* and *dyslexia* and what constellation of reading behaviors are labeled by reading clinicians and teachers.

Struggling Readers

Given the wide variety of labels applied to students who fall outside the lower boundary of “normal,” over the past two decades it has become common to refer to such students as *struggling readers* (Dudley-Marling, 2011). In the past decade alone, nearly 3000 peer-reviewed journal articles have used the phrase struggling reader to refer to students perceived as having difficulty learning to read. There are wide-spread definitions of what the term struggling reader means and what characteristics qualify a student as a struggling reader (Allington, 2006; IDEA, 2004; No Child Left Behind Act, 2001). Lapp and Flood (2003) defined struggling readers “as students who are not reading grade-level material with fluency and comprehension” (p.14). This definition of struggling reader is appealing because of its broadness and alignment to the SVR, this study’s theoretical framework. Yet applying the label is not sufficient; determining with what aspect(s) of literacy the reader is struggling – decoding or linguistic comprehension or both – is needed in order for the student to receive intervention targeted toward the area of struggle, with comprehension as the end goal.

Struggling Within an Educational Context

When it comes to readers who struggle, nothing is ever truly simple (Allington & Walmsley, 2007). Readers’ interactions with text are much more complex than can be understood through the use of a simple label (Dudley-Marling, 2011). The social practice perspective on academic literacy asks researchers not to focus solely on the individual student identified as struggling but requires an examination of the educational contexts that led to the positioning of the student as struggling in the first place (Frankel, Jaeger, Brooks, & Randel, 2015). Researchers must ask: What reading practices were valued by the assessments used to

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identify a student as struggling? How did the student's instructional experiences align with the content of reading assessments?

Struggling with Comprehension

Weak comprehension in young readers can stem from a variety of issues with a reader's skills in decoding, fluency, vocabulary or accessing prior knowledge (Paris & Hamilton, 2009; Perfetti & Adlof, 2012). When a reader's decoding skills are insufficient to access the print on the page, little meaning-making can even be attempted. When a student lacks automaticity with word recognition, meaning breaks down because of the strain on working memory needed to scaffold meaning-making. Automaticity of decoding, a critical component of fluency, is essential for high levels of comprehension (Pikulski & Chard, 2005). Paris, Carpenter, Paris, and Hamilton (2005) cautioned that "fast and accurate word identification does not always lead to high levels of comprehension, and neither does slow, less accurate word recognition necessarily imply poor comprehension" (p. 136).

Some readers have adequate decoding skills, but limited vocabulary reserves or weak depth of understanding of the word's meaning. That is, the reader may have some knowledge of many words and concepts, perhaps enough to engage in day-to-day conversations or get the gist of a story. However, the reader needs an even deeper understanding of many academic words and concepts to build conceptual understanding of a topic and engage in academic dialogue (Beck, McKeown, & Kucan, 2013). Some young readers have not been taught (Duke & Block, 2012), or are unable to effectively use, the strategies required to comprehend a text such as: activating prior knowledge, predicting, purpose-setting, questioning, visualizing, self-monitoring, summarizing, story mapping, identifying text structures, and reflecting on the author's purpose (Beck, McKeown, Hamilton, & Kugan, 1997; Brown, Pressley, Van Meter,

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Schuder, 1996; Duffy et al., 1986; Eilers & Pinkley, 2006; Kinnunen & Vauras 1995; Sporer, Brunstein, & Kieschke, 2009; Williams et al., 2005). Only three to 10% of school-age students demonstrate adequate word-level abilities (decoding and word recognition) but nevertheless struggle with comprehension of written text (Cain & Oakhill, 2011; Leach, Scarborough, & Rescorla, 2003; Nation, 2005).

Struggling with Word Reading

Weak decoding skills cause young readers to struggle at the word level. Decoding skills provide a foundation for successful reading (Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2001). Decoding skills enable a reader to apply the alphabetic principle. The reader transforms print into speech sounds by “transforming graphemes [letters] into phonemes [sounds] and blending the phonemes into pronunciations” (Ehri, 1995, p. 116). Readers with poor decoding skills experience difficulty in applying this alphabetic principle when decoding (Adams, 1990) and most reading disabilities are associated with deficits at the word reading level (Scarborough, 2001). Studies have shown a student’s ability to decode words in isolation may be different from the student’s ability to identify words in context (Ardoin et al., 2013; Nicholson, 1991). Struggling decoders rely on context to compensate for their poor decoding when identifying words (Gough, 1996; Stanovich, 1986). But “context appears to be a fickle friend” (Blick, Nicholson, Chapman, & Berman, 2017, p. 77) helping poor decoders read some words, but not others (Gough, 1983). Thus, these word-level deficits make decoding effortful and inaccurate and impact the comprehension process (Beck & Juel, 1992; Nation, 2005; Vellutino, 1991).

Dyslexia

Word-level reading skills fall on a continuum, with dyslexia at the far end of the continuum (Pennington & Lefly, 2001). Dyslexia is a condition in which an individual struggles

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with word reading despite adequate effort and instruction (Fletcher et al., 2007; Hulme & Snowling, 2009; International Dyslexia Association, 2002; Velluntino & Fletcher, 2008; Velluntino et al., 2004). The International Dyslexia Association (IDA) and National Institutes of Health and Human Development's definition of dyslexia reads:

Dyslexia is a specific learning disability that is neurological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge. (IDA, 2002)

In light of the primer on reading development in typically developing young children, consider the aspect of the dyslexia definition that reads “these difficulties typically result from a deficit in the phonological component of language” (IDA, 2002). Recall the importance of building strong phonological awareness skills in young readers, especially phonemic awareness, which is the ability to hear and manipulate the sounds in spoken words, and the understanding that spoken words and syllables are made up of sequences of speech sounds (Yopp, 1992). Recall the importance of the alphabetic principle, that realization that oral sounds (phonemes) in spoken words are represented by letters (graphemes) in print. Recall that children who can take apart words into sounds, recognize their identity, and put them together again have the foundation skill for using the alphabetic principle, the skill necessary for the development of decoding skills.

The deficit in the phonological component of language experienced by children with dyslexia strikes at the core of what is needed for children to develop robust phonological

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awareness, phoneme awareness, and understanding of the alphabetic principle and impairs their ability to master decoding skills. Every aspect of word-level reading is affected by phonological skills (Ahmed, Wagner, & Kantor, 2012; Halderman, Ashby, & Perfetti, 2012). Impaired decoding skill, in turn, affects the development of encoding skills and affects the size of the bank of words known automatically by sight. The ability to become a fluent reader is compromised because the development of fluent word reading depends heavily on learning to identify large numbers of words by sight (Torgesen, Rashotte, & Alexander, 2001). Impaired reading skill affects vocabulary growth (Cunningham & Stanovich, 1998), alters children's attitudes and motivation to read (Oka & Paris, 1986), and leads to missed opportunities to develop comprehension strategies (Brown, Palincsar, & Purcell, 1986). Several longitudinal studies revealed children who are poor readers at the end of first grade almost never acquire average-level reading skills by the end of elementary school (Francis, Shaywitz, Stuebing, Shaywitz, Fletcher, 1994; Juel, 1988; Shaywitz et al., 1999; Torgesen & Burgess, 1998).

Early Identification

To begin, it is important to understand that any discussion of persistent reading underachievement includes the need for effective screening to identify students at risk for reading failure. Two key pieces of legislation significantly changed the assessment landscape for students in public school and, in particular, for those at risk for poor reading outcomes: the enactment of the No Child Left Behind Act (NCLB; 2002) and the reauthorization of the Individuals with Disabilities Education Act (IDEA; 2004). NCLB required states to test and report documentation of Adequate Yearly Progress. In response, states were driven to determine how to identify students who struggle with reading, including students with disabilities, using fair and valid assessments (Connor, Alberto, Compton, & O'Connor, 2014).

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Two years later, in 2004, Congress acted on concerns about the number of students in special education, and the related suspicion that many students currently classified as having a specific learning disability (SLD) might have avoided the need for special education if instructional support and interventions had been provided to them at an early stage in their education. Congress' reauthorization of IDEA (2004) ushered in a departure from the United States' "wait-to-fail" model (Fuchs & Fuchs, 1998; Velluntino et al., 1996) of special education to one focused on quality interventions within regular education classrooms, followed by case-by-case decisions based on a struggling student's response to high-quality, research-based interventions (RTI Action Network, n.d.).

Now, screening all students' reading skills (i.e., universal screening) at the beginning of the school year, especially in the early grades, and then using assessments to monitor student progress, are cornerstones of the Response to Intervention (RTI) approach. RTI's multi-tier system of support is meant to prevent chronic underachievement and curb the wrongful identification of learning disabilities.

RTI uses universal screening as a principal means of identifying students as being at risk for reading difficulties (Glover & Albers, 2007). In both research and practice, universal screening usually involves measures of early literacy and foundational reading skills, including phonemic awareness, letter naming fluency, concepts about print, word reading, and oral language ability, including vocabulary. Frequently, a cut score is established where children with scores falling below the cut score are considered at risk for reading difficulties and, therefore, in need of additional intervention (Jenkins, Hudson, & Johnson, 2007). Early identification is a gateway to the early intervention at-risk readers need.

Early Identification Leads to Early Intervention

Studies confirm that intensive and targeted early reading instruction and intervention have been successful in increasing basic skills of young students who enter the classroom with meaningful differences in early language (Hart & Risley, 1995) and literacy skills (Scarborough, 1998). Interventions are most effective when administered in kindergarten (Cavanaugh et al., 2004; Wanzek & Vaughn, 2007) and first grade (Hines, 2009; Jenkins et al., 2004; Pullen et al., 2005). For example, after receiving intensive instruction (from 30 to over 300 instructional hours across studies), 56-92% of the at-risk beginning readers across six studies reached the range of average reading ability (Torgesen, 2002). A meta-analysis comparing early intervention studies offering at least 100 sessions reported larger effect sizes for intervention studies conducted with kindergarten and first graders than with children in 2nd and 3rd grades (Wanzek & Vaughn, 2007). In contrast, a meta-analysis of reading intervention for students in Grades 4 and higher (Scammacca et al., 2007) reported an average effect size less than 0.1 on standardized measures. Therefore, early identification of students at risk for reading difficulties is a crucial aspect of supporting struggling readers' academic success.

Early Identification of Students At Risk for Dyslexia

Simply defined, *dyslexia* refers to a difficulty in developing word-level reading skills despite adequate instructional opportunities (Fletcher et al., 2007; Hulme & Snowling, 2009; Kilpatrick, 2015; Velluntino et al., 2004). Studies showing the brain characteristics of individuals with dyslexia can be observed as early as infancy and preschool, especially in children with a genetic risk for dyslexia (Leppanen et al., 2010). Research has suggested approximately 40%-60% of people with a first degree relative with dyslexia will struggle with reading themselves

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(Volger, DeFries, & Decker, 1985). According to Ozernov-Palchik and Gaab (2016), “family history is one of the strongest risk factors for developing dyslexia” (p. 160).

Deficits in phonological awareness, rapid automatized naming, verbal working memory, and letter knowledge have been shown to be robust precursors of dyslexia in children as young as age 3 (Puolakanaho et al., 2007). Studies have established an association between deficiencies in short-term memory and early reading problems (Liberman, Shankweiler, Liberman, Fowler, & Fisher, 1977; Mann, Liberman, & Shankweiler, 1980). Verbal/phonological short-term memory is one of the core predictors of dyslexia (Ozernov-Palchik et al., 2017). These studies suggest that children at risk for dyslexia arrive at kindergarten with a brain less optimized to learn to read (Gaab, 2017). Thus, there is no need to wait until students fail to learn to read to provide access to the necessary intervention (Ozernov-Palchik & Gaab, 2016). Instead, a dyslexia screener that screens for early literacy skills and milestones, such as the Early Literacy Screener (Gaab, 2018), can be administered to children before they begin school and can identify those students who may be at risk for reading disabilities so that they receive appropriate instruction and intervention in kindergarten to change their literacy trajectory. But typically, dyslexia is not diagnosed until a child has failed to learn to read as expected, usually in second grade or later. This means dyslexia is generally diagnosed after the most effective time for intervention has passed. As a result, children with dyslexia must often make up a large gap in reading ability and experience to reach the level of their typically reading peers (Hiebert & Taylor, 2000; Torgesen, 2002).

This “dyslexia paradox” (Ozernov-Palchik & Gaab, 2016, p. 157) is detrimental to the well-being of children and their families who experience the academic and psychosocial implications of dyslexia for years prior to diagnosis. The negative consequences of the inability to read accurately and fluently are dire and include poor educational outcomes (McLaughlin,

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Speirs, & Shenassa, 2014; Ricketts, Sperring, & Nation, 2014), reduced occupational choices and lower levels of employment (McLaughlin et al., 2014; OECD, 2013). Self-perception of reading failure and negative response from others leave children with dyslexia vulnerable to feelings of shame, failure, inadequacy, helplessness, depression, and loneliness (Valas, 1999), poor self-esteem, and poor mental and physical health (Boetsch, Green, & Pennington, 1996).

In a study that compared 29 children with mild reading disabilities (defined as a 9 month delay) to 39 children without reading disabilities, the mildly impaired children were found to be more anxious and less happy, and rated themselves less competent scholastically (Casey, Level, Brown, & Brooks-Gunn, 1992). Mugnaini, Lassi, La Malfa and Albertini (2009) conducted a meta-analysis of studies focused on the association of reading difficulties, dyslexia, or learning disorders and internalizing symptoms, anxiety or depression. They found dyslexia is a specific risk factor for increased internalizing, anxious, and depressive symptomology as early as age 7. Asocial behaviors may develop and have long-standing consequences (Baker & Ireland, 2007). Children with dyslexia are less likely to complete high school or pursue higher education and they are at an increased risk of entering the juvenile justice system (Grigorenko, 2006). Therefore, early identification of children at risk for dyslexia is critical for improving reading outcomes in children and for preventing and the socio-emotional problems that accompany reading failure (Ozernov-Palchik & Gaab, 2016).

Early identification of children applies to emergent bilingual students who are acquiring a second or even third language. Emergent bilingual students tend to experience a persistent lag behind their monolingual peers in the development of oral language skills such as vocabulary (Geva & Massey-Garrison, 2013) – especially academic language – and listening comprehension. In contrast, with adequate and consistent instruction, emergent bilingual students

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tend to develop similarly at the word reading level to native speakers (Geva & Massey-Garrison, 2013). Specifically, similar patterns of development in emergent bilingual students can be observed in phonological awareness (Geva & Farina, 2012), word and early text reading (Geva & Farina, 2012), spelling (Lovett et al., 2008), and early writing skills (Ndlovu & Geva, 2008).

The dyslexia paradox and resulting educational and psychosocial implications are factors in a nation-wide push by dyslexia advocates for legislation requiring state departments of education to focus on identifying and serving the needs of monolingual and emergent bilingual students at risk for dyslexia. While the Individuals with Disabilities in Education Act (IDEA, 2004) includes dyslexia as part of the specific learning disability definition, dyslexia advocates do not believe the protections are sufficiently enacted to protect the needs of students with or at risk for dyslexia. Widespread reluctance by local education authorities (LEAs) to use the term dyslexia in IDEA (2004) evaluations, eligibility determinations, and IEP documents prompted the U.S. Department of Education to issue a “Dear Colleague” letter (Office of Special Education and Rehabilitative Services, 2015) reminding LEAs there is nothing in federal law that prevents the use of the term dyslexia. Furthermore, there is variation in how states implement IDEA (2004) when providing screening specifically for dyslexia, prompting advocates to push for legislation inclusive of universal screening systems for risk for dyslexia. Currently, of the 42 states with enacted or pending dyslexia legislation, 26 require dyslexia screening. Youman and Mather (2018) predict all states will have dyslexia laws in the next few years and provisions for screening, intervention, and accommodations will be well established in all school districts. Currently, dyslexia screening efforts are hampered by two key issues.

Challenges in Dyslexia Screening

Two key issues with screening children at risk for dyslexia addressed in this literature review include lack of consensus among researchers about the definition of dyslexia and cutoff points. Solutions for both screening issues can be found in the research literature.

Dyslexia definition debate. The lack of a universally agreed upon definition of dyslexia among researchers, including lack of agreement about the existence or nature of dyslexia – referred to as the “dyslexia debate” (Elliott & Grigorenko, 2014) – is one challenge in determining how to screen for children at risk for dyslexia. Colenbrander, Ricketts, and Breadmore (2018) and Snowling (2013) offer a theoretically sound way around the lack of a universal dyslexia definition.

Rather than debate the existence or definition of dyslexia, to determine how to identify dyslexia and other reading disorders Colenbrander et al. (2018) and Snowling (2013) situate dyslexia within the broader category of children’s literacy difficulties using the SVR. As a reminder, the SVR asserts the complexity of reading can be divided into two parts: decoding, defined as efficient word recognition; and, linguistic comprehension, defined as the ability to take lexical information and derive sentence and discourse interpretations. Decoding (D) and linguistic comprehension (L) are of equal importance and necessary for reading comprehension (R), neither sufficient without the other.

Within the SVR conceptualization, the term dyslexia is reserved for children who are “poor decoders” despite age-appropriate language comprehension skills (Colenbrander et al., 2018; Snowling, 2013). Furthermore, Colenbrander et al. (2018) intersect the SVR with the *Diagnostic and Statistical Manual of Mental Disorders V* (DSM-5; American Psychiatric Association, 2017). The DSM-5 defines dyslexia as a neuro-developmental disorder

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characterized by impairments in decoding, word reading accuracy and fluency, and spelling that have persisted for at least six months despite adequate intervention. The intersection of the idea of “poor decoders” from SVR and the definition of dyslexia from the DSM-5 yields reading-related skill areas in which one would expect to see deficits in students with dyslexia, including letter-sound knowledge, word decoding, reading fluency, and spelling (Lindstrom, 2018). These skill areas were examined in the documents found in this study’s reading intervention files.

Cutoff points debate. Another challenge in screening children at risk for dyslexia is lack of agreement about cutoff points. Cutoffs points can serve to help determine eligibility for intervention, but can also restrict access to reading intervention for those students just slightly above the cut-off score (Brady, 2019). Early identification using static assessment measures requires a trade-off between specificity (i.e., reducing the rate of false positives) and sensitivity (i.e., reducing the rate of false negatives) of identification, which can often result in high rates of over or under identification and inadequate resource allocation (Ozernov-Palchik & Gaab, 2016). Certainly, the choice of cutoff points is crucial because it influences the sensitivity and specificity of identification methods and should be driven by research on optimal criteria in particular populations (Catts, 2017; O’Connor & Jenkins, 1999; Speece, 2005). Within the research literature, word reading difficulties are commonly operationalized as performance in the lowest 16 to 25% of the population, equivalent to a standard score below 85 or 90 (Colenbrander et al., 2018). But there is no objective cutoff point below which all children are poor readers and above which all children are good readers (Bishop, 2015; Snowling, 2013). Regardless of the cutoff point choice, what is designated as dyslexia differs only in degree from less severe word-level reading difficulties (Brady, 2019).

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Petersen, Allen, and Spencer (2016) offer an alternative to debating cutoff points in static assessment measures: the use of dynamic assessments. Their dynamic assessment approach included three distinct phases (Lidz, 1996): the administration of a pretest, teaching of desired skills (for three minutes), and the administration of a posttest. The use of dynamic, rather than just static, measures was motivated by research that found young children are often misidentified as having a reading disorder when they perform poorly on early static measures of prereading. Children who have limited home or preschool literacy experiences or who are from culturally and linguistically diverse backgrounds are at particular risk for false positive, overidentification of disability (Artiles, Harry, Reschly, & Chinn, 2002; Fletcher & Navarrete, 2003). The authors hypothesized that dynamic assessment, in theory, should be able to measure a child's ability to read before that child has had any formal reading instruction. Their study found dynamic assessments measured how responsive students were to decoding instruction during the second month of kindergarten and yielded significantly higher classification accuracy over the static measures (Petersen et al., 2016). A subsequent longitudinal study that followed the kindergarteners through fifth grade indicates that a very brief dynamic assessment can predict with approximately 75%–80% accuracy which kindergarten students will have difficulty in learning to decode up to six years into the future (Petersen et al., 2018).

Snowling (2013) offers a second alternative to debating cutoff points in static assessment measures: the use of progress monitoring assessments within Response to Intervention (RTI). RTI involves monitoring progress of a group of children through a program of intervention rather than undertaking a static assessment of their current skills (Snowling, 2013). Children with the most need are those who fail to respond to effective teaching (Rose, 2009). Snowling et al. (2011) investigated the validity of using of teachers' ratings of children's progress through a

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series of development phonics phases, with each phase being quantified by a number of phonic-related skills (Department of Children, Schools and Families, 2008) as a screener for dyslexia.

Snowling et. al (2011) found teachers can be good judges of their students' progress using classroom based assessments: "their assessments predicted 50% of the variability in children's reading skills at the end of the school year (when considering this finding, it is important to bear in mind that objective test scores rarely produce better agreement over two points in time)" (p. 13). Furthermore the students teachers deemed at-risk showed the core characteristics of dyslexia – poor phonological awareness, poor verbal memory and slow verbal processing speed. Therefore, Snowling (2013) concluded there is no need to implement costly universal screening procedures; instead, there are already many data in schools that can be used by teachers to identify children who are failing to respond to mainstream teaching and that those identified should include students with or at risk for dyslexia.

The study was conducted in the United Kingdom, with a longer history of dyslexia professional development and intervention (Rose, 2009). There is scant research available on either teachers' use of dynamic assessments or teachers' use of classroom progress monitoring data to identify students at risk for dyslexia in the United States. This study will attempt to begin to fill the gap in the literature by examining whether or not markers for dyslexia can be determined using student assessment records that include progress monitoring data. If so, these markers have the potential to aide teachers in their decision-making.

Teacher Knowledge and Decision-Making

A distinct advantage of using teacher assessments to identify students in need of early intervention is that teacher-administered assessments occur on a regular basis, avoiding delays in the implementation of good-quality evidence-based intervention. Some measures used in

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kindergarten are less sensitive for identifying later-emerging reading difficulties in first or second grade (Catts, Compton, Tomblin, & Bridges, 2012). Some students develop a risk for reading difficulties in first grade and still score adequately on kindergarten measures (O'Connor, Bocian, Sanchez, & Beach, 2014). It can also be difficult to determine whether English Language Learners need intensive reading intervention or additional time to develop English skills (Klingner, Artiles, & Barletta, 2006). Thus, identification of at-risk readers should be an ongoing process in the primary grades.

Simply collecting data using screening tools and progress monitoring systems is insufficient to advance student learning. To effectively intervene on behalf of at-risk readers, teachers need to identify which students need additional instruction and then identify which intervention to use (Wagner, Coolong-Chaffin, & Deris, 2017). This practice of data-driven decision making has the potential to change classroom instruction (Campbell & Levin, 2009; Herman, Wardrip, Hall, & Chimino, 2012) by informing and shaping teachers' practice. After all, "the true value of assessment is its ability to help educators make accurate and timely inferences about student progress so that they can modify instruction accordingly" (Ainsworth, 2007, p. 80).

However, even when they select data to collect and analyze, teachers do not always know how to use data in ways that change instruction because they lack the skills and knowledge to interpret results and develop solutions (Heritage, Kim, Vendlinski, & Herman, 2009; Means, Chen, DeBarger, & Padilla, 2011). Also, teachers may overestimate student performance on classroom-administered measures. Martin and Shapiro (2011) conducted a study to investigate the accuracy of teachers' judgements of students' performance on the *Nonsense Word Reading* and *Phoneme Segmentation Fluency* measures on the *Dynamic Indicators of Basic Early*

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Literacy Skills (DIBELS; Good & Kaminski, 2002). Teachers were asked to use classroom-administered measures to separate students into two groups, those at the lowest level at the class and therefore at risk for developing academic problems) and those who performed at or above grade level. They found teachers' judgements "consistently and significantly overestimated the actual performance of students" (Martin & Shapiro, 2011, p. 343). Further, teachers can use data in simplistic ways that do not significantly alter instruction (Ikemoto & Marsh, 2007; Oláh, Lawrence, & Riggan, 2010). This is especially true when the student may be at risk for dyslexia because to accurately interpret student reading achievement data and implement effective intervention, teachers need to have an accurate understanding of dyslexia.

Prior research reveals teachers have accurate understandings when asked about reading disabilities in general, but have misconceptions when asked about the reading disability dyslexia, in particular (Washburn et al., 2017). In two studies using a survey on teacher knowledge of basic language constructs (Washburn et al., 2011a, 2011b), the authors asked preservice and inservice teachers to indicate their understanding of five true and false statements about characteristics and treatment of dyslexia. In both studies they found the majority of preservice and inservice teachers understood that students with dyslexia often experience difficulty with language-based activities, namely, decoding and spelling. But they also found teachers held the misconception that dyslexia is a result of a visual perception deficit: an overwhelming majority of teachers (71%) indicated that colored overlays and/or tinted lenses would help individuals with dyslexia, a treatment proven to be ineffective for dyslexia (Creavin, Lingham, Steer & Williams, 2015). Researchers (Berninger, Nielsen, Abbott, Wijsman, & Raskind, 2008; Moats, 1994, 2009) have reported that these misconceptions, if held by teachers, may be detrimental to

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ensuring that children with persistent reading problems receive timely and appropriate intervention.

Diagnosing Dyslexia

If a child is suspected as having dyslexia, according to The National Center for Learning Disabilities (NCLD), the diagnosis of dyslexia should be made by a qualified professional such as a neurologist, pediatrician, education psychologist, or clinical education therapists (NCLD, 2017). A student who qualifies for special education services with a specific learning disability (SLD) in reading may also be identified as having dyslexia by an education evaluation team (IDEA, 2004). California's dyslexia guidelines establish the word dyslexia may be used in IEPs: "Dyslexia may also be understood as one type of a 'specific learning disability,' which is defined in California's regulations pertaining to students who qualify for special education services" (California Department of Education, 2017, p. 3).

The Effect of Recent Dyslexia Legislation

Public interest in questions surrounding how children learn to read and how they can best be taught has existed for decades. Research has provided answers to many of these questions but this research has been slow to make inroads into educational policy and practice (Castles, Rastle, & Nation, 2018). Instead, the field has been plagued by decades of "reading wars" (Kim, 2008; Pearson, 2004). Over many years, the pendulum has swung between arguments favoring a phonics approach, in which the sounds that letters make are taught explicitly (Chall, 1967; Flesch, 1955), and a whole-language approach, which emphasizes the child's discovery of meaning through experiences in a literacy-rich environment (Goodman, 1967; Smith, 1971).

Children at risk for word-level reading disabilities, including dyslexia, need access to explicit phonics instruction. Castles et al. (2018) argue that the quality and scope of today's

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scientific evidence means that the reading wars should be over in favor of including explicit phonics instruction as children are learning to read. However, strong debate and resistance to using methods based on scientific evidence persists (Camp & Aldridge, 2007; Moats, 2007; Seidenberg, 2017). In response, a rapid influx of proposals to initiate change at the state and federal levels for students at risk for dyslexia signifies the ongoing sentiment that most states share today: dyslexia must be recognized and interventions must be provided early to children (Youman & Mather, 2018). The urgency felt by dyslexia advocates to supplement the protections found in IDEA (2004) with state level legislation focused on universal early dyslexia screening, increased professional development about dyslexia for teachers, and the inclusion of dyslexia coursework in teacher preparation programs (Decoding Dyslexia, n.d.) is evident across the United States, where 33 legislative bills related to dyslexia were introduced between January and March of 2018 (Youman & Mather, 2018). What follows are findings from emerging research on the effects of dyslexia legislation on the rate of identification of students with dyslexia, dyslexia interventionists' confidence and certainty, and classroom teachers' confidence and certainty.

Identification Rates

Phillips and Odegard (2017) conducted an empirical study on the potential impact of state dyslexia laws on the identification of students with a specific learning disability (SLD) and the identification of students with dyslexia (Phillips & Odegard, 2017). There were three aims of the study. The first aim was to determine if any detectable changes in the identification rates of SLD occurred: the authors found no significant changes in the identification rates of SLDs. The second aim was to characterize the rate of identifying dyslexia in the two states (Texas and Arkansas) that require public schools to report the number of students identified with dyslexia: they found the identification rate of public school children with dyslexia in Texas and in

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Arkansas was lower than 5%, which represents the most conservative estimate of dyslexia. The third aim was to characterize the identification rate across first to 12th grades: they found half or more of the public-school districts in Arkansas did not identify a single student with dyslexia in grades 7–12.

Given that a primary motivation for current state-level dyslexia laws being implemented is to improve the identification of students in public schools with dyslexia, the authors concluded that these efforts have failed to achieve their intended aim based on their analysis of publicly available data. It could be a result of the use of comprehension-based screeners that may mask accuracy-based reading deficits. It could also be argued that through RTI, identification and intervention happens early, thus screeners are not having to identify those with dyslexia in the later grades. But the failure of these schools to identify a single student runs contrary to the established neurobiological basis of dyslexia and its persistence across the life span. It runs contrary to the documentation of late-emerging reading disabilities. The authors advocated for follow-up studies to be conducted to examine questions about under-identification stemming from possible factors including screening measures and the identification process. This study will answer this call for further research by first examining the question of what distinguishes readers with dyslexia from struggling readers.

Teachers' Confidence and Certainty

Worthy et al. (2016) employed qualitative research methods to focus on dyslexia policy and practice from the teachers' perspective. The authors – a professor and eight doctoral students at the University of Texas – explored the question, “What are elementary educators’ understandings, perspectives, and experiences around dyslexia?” (Worthy et al., 2016, p. 437). The most salient theme across interviews with 32 public school teachers in Texas was a strong

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sense of responsibility to provide appropriate, supportive instruction geared toward their students' strengths and needs. This sense of responsibility was evident in a number of ways, including: participants' compliance with district regulations about dyslexia; assessing and attending to their students' academic, social, and affective needs; and, seeking information about dyslexia to inform instruction.

Although participants were committed to providing support for their students identified as dyslexic, most said the policies, procedures, and limited information provided by their districts interfered with this goal. Generally, participants felt their knowledge and input were not solicited or valued in meaningful ways, yet they were increasingly being asked to take on extra responsibilities related to dyslexia. They expressed concern over a lack of clear, helpful information, and about limited communication regarding dyslexia identification and intervention.

Interventionists' Confidence and Certainty

Worthy, Svreck, Daly-Lesch, and Tily's (2018) qualitative study of dyslexia interventionists' confidence and certainty about dyslexia and the interventions they used found dyslexia interventionists certain of their beliefs. Worthy et al. (2018) defined interventionists as "educators with training in dyslexia-specific programs" (p. 360). In a field marked by uncertainty with educators who are less confident in their own knowledge and self-efficacy regarding dyslexia (Gibbs & Elliott, 2015; Worthy et al., 2016), the authors used the concept of Authoritative Discourse (AD; Bakhtin, 1981) to understand why interventionists were so certain.

The authors attributed the authoritative and unquestionable stance of the interventionists to the effect of common dyslexia discourse, circulated by advocacy organizations, and intervention training programs that has been institutionalized in legislation. Two of the 13 interventionists in the study were enrolled in a special education master's degree program with a

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specialization in dyslexia. The other 11 interventionists received their training through private, IDA-accredited dyslexia training centers. Worthy et al. (2018) found the discourse and law position one group of educators – interventionists with training in dyslexia-specific programs – as more knowledgeable than classroom teachers. The language walls (Matusov & von Duyke, 2009) employed by interventionists, for example, “We *know* what dyslexia is, we *know* the neurobiology of it” and “*I can fix it*” (Worthy et al., 2018, p. 377), likely reflected the efficacy of their dyslexia training, where answers to reading difficulties were presented with authority and certainty, according to the authors.

The authors concluded their study with concern about the AD of dyslexia and institutionalization in policy that has led to a separation, at least in Central Texas and likely beyond, between dyslexia interventionists and other educators who share the goal of supporting students with reading difficulties. Supporting the needs of children at risk for or identified with dyslexia is a complex, nuanced endeavor, requiring collaboration between interventionists and classroom teachers for the benefit of students. The certainty of AD could leave little room to question ideas presented in dyslexia training, to implement alternative forms of instruction that could potentially benefit students labeled as dyslexic, and to advocate for students. The findings serve as a reminder to actively work to dismantle AD about dyslexia and to engage in conversation that focuses on areas of research consensus, including the need for comprehensive, meaning-based, responsive reading instruction for all students with reading difficulties (Compton, Miller, Elleman, & Steacy, 2014; International Literacy Association, 2016). The findings motivate the need for rich description of what distinguishes dyslexic readers from struggling readers to inform and authorize all educators who share the goal of supporting students with reading difficulties.

Summary

Learning to read is a process that rests on strong phonological awareness. Access to early intervention is imperative for all at-risk readers, especially those readers at risk for dyslexia, who have a neurobiological deficit in phonological processing. Federal legislation, including the reauthorization of IDEA (2004), and the increased use of a Response to Intervention multi-tiered system of support for students, emphasize the importance of universal screening and ongoing progress monitoring to identify students at risk for reading disabilities. However, debate about the definitions of reading disabilities in general, and dyslexia in particular, and cutoff points for qualifying for intervention hamper early identification efforts. Lack of clarity and consensus about the widely used terms *struggling reader* and *dyslexia* also affect early identification and intervention. Furthermore, emerging research of the effects of recent dyslexia legislation suggest legislation may not be yielding better early identification practices and may serve to polarize educators who should be working collaboratively to meet the needs of at-risk readers.

Regardless of who is responsible for administering the screeners and assessments to at-risk students, general education classroom teachers are often tasked with using the assessment data to make decisions regarding which students are in need of intervention. Despite the lack of a universally agreed upon definitions, cutoff scores, and intervention policies, teachers bear the ultimate responsibility for teaching all of their students to read, including those identified as dyslexic. Even when researchers establish consensus, there is a vast amount of empirical research on literacy acquisition and reading disabilities that is untapped by people working in schools (Kilpatrick, 2015).

There is little qualitative research focused on identifying the similarities and differences between struggling readers and dyslexic readers in general education classrooms and how

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educators use those characteristics to inform intervention and instructional decisions. Document analysis framed within the Simple View of Reading and informed by the body of research on predictors of dyslexia was used to compare struggling readers with students identified or diagnosed as dyslexic.

This study aimed to contribute to the existing literature by using qualitative document analysis to examine kindergarten to grade 3 students' clinical reading intervention files gathered and added to by reading clinicians. The use of document analysis will be discussed further in the following chapter. The hope is to begin to close the gap between research and classroom practice by identifying markers that distinguish dyslexic readers from struggling readers using assessment tools familiar to classroom teachers, interventionists, and reading clinicians.

Chapter 3

Methodology

The purpose of this comparative study was to determine, describe, and report what distinguishes dyslexic readers from struggling readers. This chapter describes the research design, recruitment of the sample population, formation of the instrumental case, and measures taken to protect human subjects. It also describes instrumentation, data collection and analyses for the study, ethical considerations, and the researcher's positionality.

Research Design

This qualitative study employed document analysis, a systematic procedure for reviewing or evaluating documents, to better understand the reading behaviors that distinguish struggling readers and readers with dyslexia or at risk for dyslexia. The documents analyzed in this study came from the clinical reading intervention files of 44 students who sought clinical reading intervention in kindergarten to grade 3. An explanation of document analysis and formation of the instrumental case of students, represented by their clinical intervention files, is provided next.

Document Analysis

As a research method, document analysis is particularly applicable to studies seeking rich descriptions (Stake, 1995; Yin, 1994) because “documents of all types can help the researcher uncover meaning, develop understanding, and discover insights relevant to the research problem” (Merriam & Tisdell, 2015, p. 178). While document analysis is often used in combination with other qualitative research methods as a method of triangulation (Denzin, 1970), according to Bowen (2009), document analysis can also be used as a stand-alone method. For example, Ruble, McGrew, Dalrymple and Jung (2010) examined the IEPs of 35 participants with autism using document analysis to determine the quality of the IEPs based on requirements

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of the IDEA (2004). Judge and Simms (2009) used archival document analysis in a national study of special education teacher preparation programs to determine whether or not programs offer assistive technology courses, as required by the IDEA (2004).

Document analysis offered this study several advantages over other qualitative research methods. Advantages included coverage, stability and lack of obtrusiveness, and reactivity (Bowen, 2009). Documents provide broad coverage, meaning they cover a long span of time, or many events, or many settings (Yin, 1994). This study benefited from broad coverage since learning to read – or struggling to learn to read – is a process that occurs over months and years, a process that is documented in various ways by educators. The documents were stable, meaning the researcher’s presence did not alter what is being studied (Merriam & Tisdell, 2016). In addition, the stability of the documents used in this study allowed for repeated reviews. Finally, documents are unobtrusive and non-reactive, meaning they were unaffected by the need for the reflexivity inherent in observations and interviews.

Like all qualitative research methods, document analysis requires robust data collection techniques and detailed documentation of the research procedure. According to Bowen (2009), document analysis is an iterative process involving superficial examination, thorough examination, and interpretation that “combines elements of content analysis and thematic analysis” (p. 32). The analytic procedure involved finding, selecting, making sense of, and synthesizing data contained in documents. The data from the document analysis were then organized into major themes, categories, and case examples through content analysis (Labuschagne, 2003). Each of these procedural steps is addressed in the following sections, beginning with how student assessment records were found and formed into an instrumental case to study.

Sample Population

Document analysis requires data selection instead of data collection (Bowen, 2009) and qualitative researchers are expected to use multiple sources of evidence to seek convergence and corroboration (Yin, 1994). In this study, the files were selected from two literacy clinics and formed into an instrumental case. A description of each clinic's purpose, directors, clinician qualifications, students served, and barriers to access are provided next.

Recruitment

The sample for this study was drawn from 68 clinical intervention files from two Southern California reading clinics, one community-based literacy clinic (CLC) serving an urban area and one private literacy clinic (PLC) serving a suburban area. CLC clinicians work under close supervision of university faculty and support a diverse population of children as young as kindergarten who are struggling to learn to read and write. The PLC clinician is qualified to diagnose dyslexia and works with students with dyslexia, some who were diagnosed by clinical psychologists prior to enlisting the services of the clinician. Permission to gain access to clinical intervention files and conduct document analysis was granted by both clinic directors.

Community-Based Literacy Clinic. The community-based literacy clinic (CLC) is located in a large urban community in a Southern California City. The CLC provides services to K-12th grade students in need of extra support as literacy learners. Students “receive individualized, one-on-one tutoring to strengthen their reading, writing, phonics, phonemic awareness, fluency, spelling, and comprehension” (Community Reading Clinic, n.d.) over the course of 10-12 one-hour sessions provided during the fall, spring, or summer semester. Separate diagnostic evaluation services are also available for a fee. Students are permitted to reapply to the CLC to receive additional semesters of 10-12 one-hour sessions, but priority is given to

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students who have attended fewer than two semesters. The director of the CLC is an assistant professor at a large public university who has eleven years of elementary school teaching experience, a doctorate in English Education, over a decade of teaching at the higher-education level, and a scholarly publication record of studies on equity issues in the field of literacy.

CLC clinicians who created the clinical files used in this study were graduate students pursuing a Master of Arts in Reading Education with a Reading Certificate Added Authorization or were graduates of the Master of Arts in Reading Education program. Graduate students worked at the CLC under the close supervision of university faculty, who observed clinical sessions through one-way glass and provided real-time feedback as well as written feedback about upcoming clinical lesson plans. Prior to working with students, graduate student clinicians typically completed a Masters level course on language arts assessment to develop their theoretical knowledge and practical skill in using formal and informal assessment tools that assess literacy competencies (reading, writing, listening, and speaking). As they worked with students, graduate students were enrolled in a Masters level course with a two-part structure, a seminar and a supervised teaching experience. During the seminar component, graduate students learned instructional strategies for teaching reading/language arts learners across the grades and curriculum. The supervised teaching experience provided graduate student clinicians with the opportunity to work directly with students who were assessed in the CLC and were identified as having difficulty in one or more areas of reading/language arts.

The CLC maintains a website and a Facebook page but does not actively advertise or recruit students. Instead, families learn about the CLC through information networks such as word of mouth, an internet search, and/or classroom teacher recommendations. Interested families submit an application each semester through the CLC website.

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There are several barriers to accessing clinical literacy support that the CLC actively works to remove. One barrier is clinician availability. According to the director (K. Sciorba, personal communication, September 17, 2019), the CLC receives three times more applications than the clinic can accept into a given session. Financial need does not factor into the clinic director's decision-making process regarding a student's acceptance and partial fee waivers are available to families who qualify (some families pay as little as \$1 a session). However, funds are limited, restricting the CLC's ability to hire enough graduates of the Masters program to work with additional students. Therefore, clinician availability is limited by the number of students enrolled in clinical coursework each semester and by the availability of funds to hire additional clinicians. A second barrier is limited flexibility with scheduling clinical sessions. Students assigned to current Masters students must attend sessions Tuesday and Thursday evenings when class is in session and when clinical supervision is available. There is a room furnished with comfortable chairs, books, and desks where families and siblings can wait and complete homework. But only the graduates of the program have the flexibility to provide clinical sessions on the weekends. A third barrier is a limit to the level of disability clinicians can support. Children may struggle with learning to read for reasons such as, but not limited to, deafness, blindness, primary language disorder, autism, pervasive developmental disorder other than autism, and cognitive impairment (Berninger et al., 2008). Given the relationship of the CLC to the requirements of the Masters program, students selected to receive services at the CLC are limited to general education students with reading and writing challenges.

Private Literacy Clinic. The private literacy clinic (PLC) is located in suburban town nine miles from a large Southern California city. Currently in its 24th year, the PLC is a full-time education clinic committed to helping people ages four to adult develop their literacy skills and

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improve their overall learning. The PLC offers private reading and writing instruction, comprehensive testing and evaluation of language, reading, and writing abilities, determination of specific learning needs in the areas of language development, phonics, vocabulary, comprehension, study strategies, and writing, and diagnosis of learning problems including dyslexia and dysgraphia.

According to the director (L. Thrope, personal communication, September 20, 2019), the PLC does not serve the garden variety struggling reader (Stanovich, 1988). Instead, it serves students who have not responded to the levels of intervention provided by the school. Students are referred primarily through pediatricians, pediatric ophthalmologists, psychologists, and speech therapists and through information networks such as word of mouth, finding the PLC's website through an internet search, and, recently, inclusion in a homeschooling network's referral process. The director's qualifications include 16 years as an elementary and middle school classroom teacher in the county, eight years as an adjunct professor of reading/language arts education courses at two local universities, an undergraduate degree in Early Childhood and Elementary Education, a graduate degree in Reading and Language Education, and doctoral degree in Reading Education.

When a family contacts the PLC about reading therapy, a consultation/screening is scheduled with the director and paid for by the student. During that time, the clinician conducts a set of literacy assessments to determine whether or not the student is evidencing any markers for dyslexia, dysgraphia, and co-morbidity with ADHD. The markers for dyslexia include difficulty cracking the code at the word level, dissonance with letter/sound correspondence, mispronouncing words that have similar shapes, omitting words, substituting one word for another, phrasing incorrectly or not phrasing at all (difficulty with prosody), having a negative

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experience with books, a poor self-image as a reader, lack of confidence with print, and poor ability to answer questions about text. The markers for dysgraphia include disorientation of pencil on paper, not being able to read or transcribe the students' writings, very poor spelling, poor sentence construction, weak mechanics (capitalization, punctuation), repeating the same idea for lack of other words, the inability to be coherent in their writing, not having the ability to elaborate on an idea in writing, not being able to respond in writing to a prompt, and not being able to make the connection between thought and prose. The clinician also determines the level of the family's commitment to consistent intervention and the willingness of the family to participate in home support. Parents/guardians are encouraged to do anything that enables them to be a successful home supporter of the strategies used in the clinical setting including attending clinical sessions, recording the clinician working with the student, and taking photographs of everything that is done in the clinic.

There are several barriers to accessing clinical literacy support at the PLC. First, all students typically pay the same rate per session, though a negotiated rate is offered when an existing student is faced with an unexpected financial challenge or enrolls more than one child with learning issues. Because of the complexity of the reading issues addressed at the PLC, students often need several hours of reading therapy a week, which can be cost-prohibitive for families. Second, though the clinician offers hours during the school day and on weekends, most families prefer access to sessions after school. Third, like the CLC, the PLC cannot serve all levels of disability. The PLC serves students diagnosed with learning disabilities, ADD/ADHD, Tourette's Syndrome, and Autism Spectrum Disorder. Potential students who would benefit from time with a psychotherapist and students with intensive speech therapy needs are not served by the PLC; instead, they are referred to the appropriate professionals.

Participants

A purposive sampling procedure (Krathwohl, 2009) was employed with the goal of selecting 40 total clinical files – approximately five struggling readers and five students at risk for dyslexia or diagnosed with dyslexia per grade level in kindergarten to grade 3 – for inclusion in this study. After receiving IRB approval to conduct the study, the directors of both clinics granted the researcher permission to access clinical intervention files. Information about the available files is detailed below, organized by clinic.

Initial Community-Based Literacy Clinic Files

In the spring semester of 2018, the community-based literacy clinic (CLC) moved away from paper files stored in file cabinets to electronic files stored on a password-protected Google Drive. According to the CLC's director, the decision to move to a digital filing system was made to provide an increased level of intervention by allowing clinicians and clinic supervisors immediate and ongoing access to student files, admission applications, demographic information, and returning students' previously created intervention files. The drive contained files for students served during five semesters (spring, summer, and fall semesters in 2018, spring and summer semesters in 2019). In addition, the drive contained resources for clinicians such as recommended assessment tools, templates for clinic reports, and literacy intervention strategies.

The available files were reviewed using the first inclusion criterion, grade level of kindergarten to grade 3 at the time of seeking clinical literacy intervention. The grade level recorded by the parent/guardian on the application was used to determine the student's grade level. Students who applied for acceptance during the summer semester were coded as the grade level they just completed. Initially, 35 students appeared to meet eligibility based on their grade level at the time of acceptance. However, upon closer examination, six students were excluded

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when it was determined that they first applied while third graders but were not accepted until they reapplied the following year as fourth graders. In total, 29 students (four in kindergarten, ten in first grade, nine in second grade, and six in third grade) met the initial eligibility criterion based on their grade level at the time of acceptance.

Initial Private Literacy Clinic Files

Clinical intervention files at the private literacy clinic (PLC) stored in physical file folders and file cabinets represented over 350 students served since 1995. The PLC director provided access to 33 of the most recent files of those students that met the first inclusion criteria, beginning reading therapy in kindergarten to grade 3, as recorded by the parent/guardian on the clinic's parent intake form. Students who sought reading therapy during the summer were coded as the grade level they just completed. In total, all 33 students (five in kindergarten, 11 in first grade, six in second grade, and 11 in third grade) met initial eligibility criterion based on their grade level at time of acceptance.

Additional Inclusion/Exclusion Criteria

An instrumental case is a case selected to best understand a specific issue (Stake, 1995). A first-pass document review (Corbin & Strauss, 2008) of the combined 62 files determined the contents of each clinical intervention file. The CLC files typically contained the parent application, pre- and post-assessments, weekly instructional records, and the clinician's final report. The PLC files typically contained the parent questionnaire, teacher questionnaire, pre-assessments, recommended intervention plan, and clinician notes. The first-pass document review helped establish a second inclusion criterion: to be considered eligible for inclusion in the instrumental case, files needed to contain all of the documents from their respective clinics. As a result, five files from the CLC were excluded when, despite several requests, final reports from

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students served by spring semester 2019 could not be obtained, reducing the number of CLC files to 24. Five files from the PLC also failed to meet the required document criterion, reducing the number of eligible PLC files to 28.

The combined 53 eligible student files were read in their entirety several times in order for this researcher to become immersed in the details while also trying to get a sense of the whole (Agar, 1980). During that process, it became evident that a number of students had diagnosed disabilities. This was expected because approximately 60% of children with reading difficulties meet criteria for at least one co-occurring disorder such as ADHD, writing impairments (dysgraphia), anxiety/depressive disorders, and specific language impairment (SLI) (Wadsworth, DeFries, Willcutt, Pennington, & Olson, 2015). The variety of disabilities found in students' files prompted the need to make eligibility decisions regarding each disability.

Students with ADHD, dysgraphia, anxiety/depressive disorders, and/or mild SLI were included in this study because, according to research, all disorders appear to be co-occurring with reading disabilities. Previous research has found approximately 20-40% of those with a reading disability have ADHD (Germano, Gagliano, & Curatolo, 2010). Though there is extensive research on the comorbidity between reading disabilities and ADHD, additional research is needed to determine the potential contribution of ADHD to the development of reading (Boada, Willcutt, & Pennington, 2012; Hendren, Haft, Black, Cushen White, & Hoeft, 2018). The correlation of word reading and writing performance is shown to be around 70% (Ehri, 2000), though the comorbidity rates between reading disabilities and writing disabilities, or dysgraphia, are difficult to determine (Hendren et al., 2018). In a systematic review of the literature published between 2003-2013, Toro and Balazs (2017) found that anxiety disorder co-occurs in 9-25% of people with reading disabilities, often as a result of the struggles faced by those who

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struggle to learn to read. In their study of the relationship of dyslexia and SLI in 15-year-olds who were identified as 3- or 4-year-olds as having an impairment of language development, Snowling, Bishop, and Stothard (2000) found the prevalence of specific reading disabilities to be 43%. In addition, two studies conducted by Catts, Adlof, Hogan, and Weismer (2005) found there is a statistically significant, but limited, overlap between SLI and dyslexia, leading the authors to conclude that SLI and dyslexia are distinct developmental disorders. The review of the cited research and the examination of participant characteristics in several studies of reading disabilities (Szeszulski & Manis, 1987; Tamboer, Vorst, & Oort, 2016; van Alphen et al., 2004) justified the inclusion of students with four comorbid disorders. This study included 10 students with ADHD (23%), 13 with SLI (30%), five with dysgraphia (11%), and three with anxiety/depression (7%).

Other disabilities were also noted in clinical files, which prompted the need to develop a third criterion to address the inclusion or exclusion of students with various disabilities. The student with Global Developmental Delay (GDD) was excluded because studies of dyslexia typically adhere to the definition of dyslexia that states, “these difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities...” (IDA, 2002) and some aspects of GDDs are linked to impaired cognitive abilities. The student with a combination of Personality Disorder (PD), Oppositional Defiant Disorder (ODD), and Obsessive Compulsive Disorder (OCD) was excluded because the presence of those three disabilities cast questions about whether the documents in the file captured evidence of the student’s reading ability or, perhaps, reflected the student’s level of engagement and willingness to participate in the tasks. The student with a seizure disorder was excluded

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because there was not enough information in the file to understand if and how the seizure disorder affected the student's reading development.

In the application, the parent of the student who was hard of hearing stated that the child struggled to read words and must use an FM Roger device during clinical sessions. A large proportion of oral deaf children (who communicate by spoken language rather than signing) were found to have reading difficulties at least as severe as the problems faced by hearing children with dyslexia (Herman, Roy, & Kyle, 2017). Decoding skills are reliant upon an established phonological system, a system made especially challenging to learn because of a deaf child's inability to hear speech sounds and because of a dyslexic child's inability to instantiate the phoneme-grapheme connection. Only 30% of oral deaf children read at age level with appropriate language skills (Herman et al., 2017). Signing deaf children face unique challenges when learning to read: signers not only need to learn an orthographical code, they need to acquire a different language, since there is no written form of sign language (Herman et al., 2017). As a result, only 12% of signing deaf children read at age level with appropriate language skills (Herman et al., 2017). The decision to exclude this student was based on the lack of sufficient information in the file to determine the severity of the student's hearing loss, communication preference, and whether the student used cochlear implants or digital hearing aids in conjunction with the FM Roger system.

Finally, four students diagnosed with Autism Spectrum Disorder (ASD) were excluded from the study because in their review of the literature regarding reading disabilities (RD) and co-morbid disorders, Hendren et al. (2018) concluded: "In both ASD and RD, there are documented impairments in reading comprehension, language, and visual/auditory processing. However, simply counting these overlaps in cognitive symptoms in ASD and RD may lead to

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false recognition of comorbidity” (para. 13). In total, eight students were excluded from this study because of GDD, combination of Personality Disorder (PD), Oppositional Defiant Disorder (ODD), and Obsessive-Compulsive Disorder (OCD), a seizure disorder, hard of hearing, and ASD.

The proposed goal of approximately 40 total files with approximately 10 files per grade, kindergarten grade 3 was met. Applying the three inclusion/exclusion criteria to the initial 68 files resulted in an instrumental case of 44 clinical reading intervention files – 20 from the CLC and 24 from the PLC – files of students who sought clinical reading intervention early in their elementary school experience; specifically, as students in kindergarten to grade 3. The instrumental case ($N = 44$) contained files of nine students in kindergarten, 13 in first grade, 12 in second grade, and 10 in third grade. Table 1 documents the effect of the inclusion/exclusion criteria on the formation of the instrumental case.

Table 1

Inclusion and Exclusion Criteria's Effect on Formation of Instrumental Case

Clinic and Grade Level	Initial Sample	1. Began Intervention Kindergarten-Grade 3	2. File Contained Sufficient Documents	3. No Excluded Disabilities
Community-Based Literacy Clinic Files	35	29	24	20
Kindergarten	4	4	4	4
Grade 1	10	10	8	5
Grade 2	9	9	7	6
Grade 3	12	6	5	5
Private Literacy Clinic Files	33	33	28	24
Kindergarten	5	5	5	5
Grade 1	11	11	10	8
Grade 2	6	6	6	6
Grade 3	11	11	7	5
Total Eligible Files	68	62	52	44

Instrumental Case Demographics

The sample for this study included clinical intervention files representing 44 students. Demographic data specific to each group is displayed in Table 2. At the time of beginning reading intervention, the 24 boys and 20 girls ranged in age from 5 years 6 months to 9 years 8 months, with an average age of 7 years 8 months. Five students were retained in kindergarten. Home language information was available for 42 students: 35 (80%) spoke only English at home, one spoke Vietnamese at home, and six (14%) spoke Spanish at home. The CLC does not collect race/ethnicity information on its students; therefore, the race/ethnicity of the sample is not reported and files could not be analyzed from an ethnic perspective. Forty-two students attended 30 different public, private, homeschool, or charter elementary schools in the county. The public and charter schools were located in nine different districts. Two students, one from Northern California and the other from Texas, attended school in their communities and sought reading intervention while on vacation in the area in the summer. Thirty-five students (80%) attended English only schools, while 4 students (9%) attended Spanish-English dual immersion schools, and 3 students (7%) attended a German-English dual immersion school. Fifteen students (34%) had a family history of dyslexia. Twenty-two (50%) of the students qualified for special education services and had an active IEP.

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Table 2

Student Demographic Information

	Struggling Readers <i>N</i> = 23		Students With or At Risk For Dyslexia <i>N</i> = 21	
	<i>n</i>	%	<i>n</i>	%
Gender				
Male	13	56.5	11	52.4
Female	10	43.5	10	47.6
Primary Reason for Referral				
Word-Level Reading Skills	23	100	21	100
Comprehension	0	0	0	0
Family History of Dyslexia	3	13.0	12	57.1
Home Language				
English	14	60.9	21	100
Spanish	6	26.1	0	0
Vietnamese	1	4.3	0	0
School Type				
Public, Non-Charter	12	52.5	9	42.9
Public, Charter	6	26.1	3	14.3
Private	2	8.7	9	42.9
Homeschool	1	4.3	0	0
Unknown	2	8.7	0	0
Language(s) of Instruction				
English Only	17	73.9	18	85.7
Spanish and English	2	8.7	2	9.5
German and English	2	8.7	1	4.8
District				
Cajon Valley	0	0	1	4.8
La Mesa Spring Valley	1	4.3	0	0
Lakeside	1	4.3	0	0
Poway	1	4.3	0	0
Ramona	0	0	1	4.8
San Ysidro	1	4.3	0	0
Santee	1	4.3	1	4.8
San Diego County	0	0	2	9.5
San Diego Unified	15	65.2	8	38.1
Private	1	4.3	6	28.6
Homeschool	1	4.3	0	0
Out of State	0	0	2	9.5
Unknown	2	8.7	0	0
History of Being Retained	2	8.7	3	14.3
IEP	10	43.5	12	57.1

Note: Totals of percentages are not 100 for every demographic category because of rounding.

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The process of determining which students were labeled struggling readers and which were labeled as readers with dyslexia or at risk for dyslexia for this study was part of the findings of research question 1 and is described in Chapter 4, Section 1.

Protection of Human Subjects

This study was approved by the Institutional Review Board (IRB) at Claremont Graduate University. Consent to access clinical intervention files pending IRB approval was granted by the directors of both literacy clinics. Because neither of the clinics were HIPPA or FERPA covered entities – and because of limited access to contact information linking the files back to families – IRB waived the requirement to seek additional consent.

Several measures were taken to ensure the protection of human subjects. A file naming system (Bazeley, 2013) was created to ensure documents for each student could be easily located in an electronic, password-protected database for analysis. Student confidentiality was preserved by assigning a unique code to every clinical file and the name of students were not identified or recorded. A dedicated, password protected email address and a password protected Google Drive account were created to receive and store files from the CLC. Documents from the PLC were scanned at the PLC's office, immediately returned to file folders, and the scanned files were electronically stored on the researcher's password protected laptop. Student files were copied into NVivo, a qualitative data analysis computer software package, which was stored on the researcher's password protected laptop. Interviews with the two clinic directors were recorded using OneNote. Upon completion of the study, the two voice recordings were erased. Next, the data collection process is described.

Data Collection

This section describes the process of collecting data from the primary instrument for this study – the clinical intervention files – beginning with the attempts made to mitigate limitations of document analysis as a methodology. Merriam and Tisdell (2016) state it is the researcher’s responsibility to assess the authenticity of the documents by establishing and verifying the author, the place, the date of writing, and the conditions under which the document was produced. While the scope of the number of contributors of data in students’ clinical files made it impossible to authenticate every document, care was taken to use multiple sources about each student’s reading behaviors to corroborate information.

In order meet the first inclusion criterion, student files needed to contain the documents previously listed by clinic. Multiple documents, listed in Appendix A, were analyzed to present an in-depth understanding of the labels used to describe readers in need of intervention, the differences and similarities between struggling and dyslexic readers, and to identify markers of dyslexia. The data collected from each document and how the instruments were used to answer the study’s four research questions will be described in the data analysis section.

Data Analysis

Yin (2003) advises qualitative researchers approach research with assertions, or propositions, informed by research. The methods matrix map in Table 3 provides a visual display of the sources of data from the students’ clinical intervention files and the qualitative methods of analysis. This section details the qualitative data analysis methods used to answer each question.

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Table 3

Data Analysis Methods

Research Question	Data Analyzed	Analysis
1. What terms are used to describe students in need of reading intervention?	Parent and teacher's multiple-choice selections and open-ended prompt responses	Content analysis Thematic analysis
2. How similar are the decoding and language comprehension skills of students identified as struggling and students identified as dyslexic or at risk for dyslexia?	Informal and formal assessments Clinician notes	Content analysis, Constant comparative analysis
3. How different are the decoding and language comprehension skills of students identified as struggling and students identified as dyslexic or at risk for dyslexia?	Informal and formal assessment data Clinician notes	Content analysis, Constant comparative analysis
4. What interventions do students receive and how are intervention decisions related to the students' reading behaviors?	Clinician notes	Content coding

Analysis of Intervention Files

The documents from the community-based literacy clinic (CLC) were imported into electronic file folders created for each student and store on NVivo, a qualitative data analysis computer software package. NVivo was selected because the software allowed this researcher to store, highlight and label electronic files (including documents, pdfs, and photos) with codes, annotations, and memos. Some CLC documents included embedded links that connected to student work samples, lesson plans, or resources. Linked documents were located and imported into the student's folder. Some links required additional permission from CLC clinicians, which was requested using the Google Drive permission protocol. All clinicians granted permission to access the documents. CLC parent application information four semesters (Spring 2018, Summer

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2018, Spring 2019, and Summer 2019) was compiled into an Excel spreadsheet for each student and imported into each student's NVivo folder. Similarly, the documents from the private literacy clinic (PLC) were scanned into electronic files that were imported into student folders on NVivo.

All files and documents were read to become familiarized with the data before coding began, Braun and Clarke's (2006) first guideline for qualitative analysis, and to determine if adequate information existed in the students' files from both clinics to answer all four of the research questions. Notes were taken on broad patterns in the data and a list of initial codes was generated. Files were read a second time and labeled with an initial coding system after generating a list of ideas about what the data represents, Braun and Clark's (2006) second guideline. All coding was done by hand within NVivo to become deeply familiar with the data rather than using NVivo to generate the codes. Once files were coded, the NVivo search function was used to display the highlighted portions of each document labeled with a particular code.

Research question 1. Two analytical methods were used to answer research question 1. Parent responses to multiple-choice questions were analyzed using content analysis. Content analysis is defined as the process of organizing information into categories related to the central research questions (Bowen, 2009). In document analysis, predefined codes may be used (Bowen, 2009). Parent choices were analyzed with codes derived from the study's theoretical framework, the Simple View of Reading (SVR; Gough & Tunmer, 1986; Hoover & Gough, 1990).

Parent and teacher responses to open-ended prompts contained range of labels acting as "short-hand" descriptors for the difficulties some children experience learning to read" (Gibbs & Elliott, 2015, p. 335), and, as in a previous study, it was noted that the terms applied to students had varying definitions (Alvarez, Armstrong, Elish-Piper, Matthews, & Risko, 2009). Therefore,

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thematic analysis was utilized. Thematic analysis is defined by Braun and Clarke (2006) as “a method for identifying, analysing, and reporting patterns (themes) within data. It minimally organises and describes your data set in (rich) detail” (p. 79). Thematic analysis can also include interpretation of various aspects of the research topic (Boyatzis, 1998). The phases and processes of thematic analysis helped capture the importance of the patterns in the language used to describe students as readers in order to “identify or examine the underlying ideas, assumptions, and conceptualizations – and ideologies – that are theorized as shaping or informing the semantic content of the data” (Braun & Clarke, 2006, p. 84).

The first step in Braun and Clarke’s (2006) thematic analysis approach, data familiarization, was accomplished by reading and rereading all of the documents in the files and coding parent multiple-choice and open-ended prompt responses on the parent questionnaires and applications, teacher responses on the teacher questionnaire or included in the final clinical reports and clinician notes. The second step involved coding documents according to descriptive codes, or summary coding, of the initial coding. The third step involved identifying analytical coding, or more in-depth coding, which began the process of theme identification. Themes and sub-themes were reviewed against the set of data for consistency and integrity, and themes were combined or discarded in this fourth step. Once the themes were refined, the fifth step involved naming and defining the themes and confirming the relevant examples were appropriate justification and illustration of the theme. Step six, presenting the themes as findings with relevant examples, can be found in Chapter 4, Section 1.

Research questions 2 and 3. Content analysis was used to answer research questions 2 and 3. Content analysis is defined as the process of organizing information into categories related to the central research questions (Bowen, 2009). In document analysis, predefined categories and

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codes may be used (Bowen, 2009). Three categories, word recognition skills/decoding, linguistic comprehension, and reading comprehension were derived from the study's theoretical framework, the Simple View of Reading (SVR; Gough & Tunmer, 1986; Hoover & Gough, 1990). In addition, codes were borrowed from Scarborough's *Reading Rope* (2001), an infographic designed to depict how word-recognition strands and linguistic comprehension strands from the SVR are interconnected and interdependent and work together as a student becomes a skilled reader. Intervention files contained data that could be coded with all three of the *Reading Rope*'s word-recognition strands – phonological awareness, decoding, and sight recognition. All five linguistic comprehension strands – background knowledge, vocabulary, language structures, verbal reasoning, and literacy knowledge – were used as codes as well. In addition, encoding was created as a category during analysis of students' spelling assessments. Spelling errors were analyzed in two ways. First, a correct or incorrect score was calculated. Then, a letter distance score for each spelling was calculated (Levenshtein, 1965) to determine the distance between the student's spelling and the conventional spelling.

Gray (2014) cautions that using borrowed classification schemes can create a bias in data analysis. To mitigate bias, document memos (Cresswell & Poth, 2018) were used to capture evolving ideas and to facilitate summarizing and identifying inductive and deductive codes. Also, also deductive codes derived from research literature were used and an instrument for deductive analysis (Kilpatrick, 2015) can be found in Appendix B. Each category of coding was further disaggregated into subsections during the second and third rounds of coding. Further analysis of students' decoding skills was informed from research on three of the five core predictors and descriptors of dyslexia (Catts, Fey, Zhang, & Tomblin, 1999; Pennington & Lefly, 2001) including measures of phonological awareness (Vloedgraven & Verhoeven, 2007),

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letter/sound knowledge (Scarborough, 1998), and family history of a reading disability (Thompson et al., 2015). Unfortunately, no information regarding verbal/phonological short-term memory (Ozernov-Palchik et al., 2017) or rapid automatized naming (Caravolas et al., 2012), were collected by the CLC, excluding both from the analysis.

In addition, the constant comparative method (Glaser & Strauss, 1967) was used to guide the data analysis for research questions 2 and 3. The inclusion of readers labeled as struggling and as at risk for dyslexia or readers with dyslexia facilitated the use of the constant comparative method. In a back-and-forth interplay with the data, codes and concepts about what distinguishes a dyslexic reader from a struggling reader were revised. Bowen (2009) warns the researcher to “demonstrate objectivity (seeking to represent the research material fairly) and sensitivity (responding even to subtle cues to meaning) in the selection and analysis of data from documents” (p. 32). Therefore, when new categories were suggested by the data, previous data were reanalyzed to determine the presence of those categories.

Research question 4. The intent was to use content analysis to examine the types of intervention students received and the students’ responses to instruction. The lack of sufficient data in the intervention files needed to fully answer research question 4 will be explained in Chapter 4.

Assumptions

It is important to establish the assumptions about the reading and language assessments used in this study’s research design because they pose a potential threat to validity, even though they were out of the researcher’s control (Cook & Campbell, 1979). There are four assumptions. First, it is assumed that the purpose of administering assessments was to determine accurate and actionable information about various aspects of each student’s reading and language ability.

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Second, it is assumed students were encouraged to read and spell to the best of their abilities.

Third, it is assumed that the assessments were administered according to instructions for use accurately and fairly by the clinicians at both clinics. Fourth, it is assumed clinicians recorded scores accurately.

Researcher Positionality

Research requires the researcher to engage in consistent reflection with self, data, and findings within the research. This researcher employed methodological recommendations posited by Creswell (2013) to position and bracket herself within the research. Her position as an elementary school general education teacher, literacy consultant, and certified dyslexia practitioner (Center for Effective Reading Instruction, 2018) contributed to her capacity to identify pertinent information (Corbin & Strauss, 2008). But her positionality could also present a bias in the content analysis instruments as well as the data analysis. She bracketed herself by reflecting on how her position as an advocate for children with dyslexia might influence the way in which she interpreted and analyzed the data. She relied upon the previously mentioned measures of triangulating findings with multiple pieces of data, utilizing an audit trail, creating document memos, and revising coding to address concerns of researcher bias, to ensure themes and assertions represent the truthfulness of the similarities and differences between struggling readers and readers with or at risk for dyslexia.

Chapter 4

Results

The overarching research question for this study focused on the reading behaviors that distinguish a reader with or at risk for dyslexia from those of a struggling reader. Described in this chapter are results related to the study's four specific research questions. Accordingly, this chapter is divided into four main sections.

Section 1: Labels Used to Describe Students

The students' clinical intervention files contained information about how parents and classroom teachers described the students as readers. To answer research question 1 – *What labels are used to describe students in need of reading intervention?* – analysis was conducted on the instrumental case of 44 students from the two literacy clinics. The study presents analysis of four sources of data used to understand the labels to describe students: 1) parents' responses to multiple-choice prompts, 2) parent's responses to open-ended prompts, 3) classroom teacher descriptions, and 4) clinical descriptions. This section ends with an explanation of how the four sources of data were used to form the two groups, struggling readers and readers with dyslexia or at risk for dyslexia, that were compared in research questions 2, 3, and 4.

Parents' Responses to Multiple-Choice Prompts

Both the community-based literacy clinic (CLC) and the private literacy clinic (PLC) inquired about why parents sought clinical intervention for their children. The CLC application contained a multiple-choice prompt asking parents to check all of the difficulties their child has had learning to read and/or write including, "difficulty remembering words already introduced on sight (sight words); difficulty with letter sounds (phonics); difficulty reading with fluency, or reading smoothly; difficulty understanding what is read (comprehension); difficulty with

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spelling; difficulty writing sentences; difficulty organizing ideas in written form” (see Appendix C).

The PLC’s application process began with a phone consultation to determine whether or not the child’s learning issues warranted clinical intervention and whether the child already had an IEP or diagnosed learning disability. PLC student files contained the clinician’s notes from initial phone consultations. Then, the PLC parent questionnaire was sent to parents with open-ended and multiple-choice prompts to gather in-depth information about the applicant’s family, school experience including history of retention, learning history, behavior, reading ability, and health history, including allergies, use of medication, vision and hearing.

The PLC’s application contained two multiple-choice prompts, one asking parents to “put a check next to the words that describe your child’s learning history” with 15 choices, and the other asking parents to “put a check mark next to the words that describe your child’s reading ability” with 14 choices. Appendix D contains the sections of the PLC parent questionnaire relevant to research question 1.

Multiple-choice responses from the PLC parent questionnaire that aligned with multiple-choice responses provided on the CLC application were selected to facilitate analysis of how parents from both clinics described their child’s need for reading intervention. Table 4 contains the language from both applications and the frequency of responses.

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Table 4

Responses to Multiple-Choice Prompt About Reason for Referral

Reason for Referral	<i>n</i>	%
Sight Words		
Difficulty remembering words already introduced on sight (CLC)	12	60.0
Can recognize some words; slow learning of new words with heavy reliance on memorization (PLC)	23	95.8
Phonics		
Difficulty with letter sounds (CLC)	18	90.0
Slow learning of the connection between letters and sounds; has difficulty ‘sounding out’ new words (PLC)	22	91.7
Fluency		
Difficulty reading with fluency, or reading smoothly (CLC)	16	80.0
Reads very slowly (PLC)	21	87.5
Spelling		
Difficulty with spelling (CLC)	18	90.0
Consistent reading and spelling errors; frequently asks how to spell words (PLC)	22	91.7
Comprehension		
Difficulty understanding what is read (CLC)	4	20.0
Cannot remember what’s been read (PLC)	7	29.2

Note: CLC = Community-Based Literacy Clinic ($N = 20$); PLC = Private Literacy Clinic ($N = 24$).

The Simple View of Reading (SVR; Gough & Tunmer, 1986; Hoover & Gough, 1990) asserts reading comprehension is accomplished as a result of decoding skills and linguistic comprehension skills, and that each component is necessary but not sufficient for reading comprehension. Content analysis of the data from both clinics combined found parents identified their children needed support with learning sight words (80%), phonics (91%), fluency (84%), spelling (91%), and comprehension (25%). On the multiple-choice prompts, every parent ($N =$

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44) indicated their child struggled with at least one aspect of decoding skills (sight words, phonics, fluency). In other words, 100% of the parents indicated their child struggled with decoding skills. Twenty-five percent ($N = 11$) indicated their child struggled with both decoding skills and comprehension. But not a single parent indicated comprehension alone was the reason they sought clinical reading intervention for their child. This finding amplifies previous studies that found only three to 10% of school-age students demonstrate adequate word-level abilities (word recognition and decoding) but nevertheless struggle with comprehension of written text (Cain & Oakhill, 2011; Leach et al., 2003; Nation, 2005).

Parents' Responses to Open-Ended Prompts

Forty parents (91%) responded to the open-ended prompts on the CLC and PLC applications. The CLC application contained one prompt: "Please explain why you are seeking literacy (reading and writing) help for this student," (Appendix C) and the PLC parent questionnaire contained two prompts: "How would you describe your child's experience in school?" and "Please add your own thoughts about your child's challenges or learning in general" (Appendix D). Thematic analysis, well suited to document analysis because thematic analysis focuses on what was said, as opposed to how it was said (Braun & Clarke, 2006), was used to analyze parent responses to the open-ended prompts found in the students' clinical files. Braun and Clarke's (2006) highly iterative, intensive, and reflective six-step process garnered rich findings regarding how parents described their children who were in need of clinical reading intervention.

Braun and Clarke's (2006) sixth step, presenting the themes as findings with relevant examples, follows next. The three themes are students' academic decline despite their effort to

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learn and their parents' effort to support them, concerns about students' mental health, and students' deteriorating attitudes toward reading.

Academic decline despite effort. In this theme, parents' concerns about their child's academic performance is described to better understand the struggling reader label. The majority of parents (73%) expressed concern that their child was falling further behind their peers: wrote a kindergarten parent, "I am worried [my son] is falling behind in school and I hope you can provide him with the tools he needs to succeed in school." A first grade parent wrote, "I know literacy is an important part of my child's development and [my daughter] is struggling and falling further and further behind every day." The urgency was most evident in the responses of parents of first grade students, where 92% ($N = 12$) stated their child was falling behind. This finding underscores the importance of early identification of potential reading difficulties.

Parents noted their child's academic decline was occurring despite the child's effort, being able to name their child's reading challenges, and their efforts to provide support at home. Before expressing concern that their child was falling behind, eighteen parents praised their child's efforts to learn to read, establishing that their child had a positive attitude toward school, wanted to improve as a reader, and put forth great effort, using descriptive phrases such as "she loves school," "he wants to be able to read so badly," and "he is so well behaved and such a hard worker who really wants to be a stronger reader." Six parents detailed the type of help their child needed from a reading clinician. For example, one parent identified "[my son] needs help slowing down and sounding out words," while another shared her daughter "needs to use the letter names and sounds she knows to figure out words," and a third wrote, "[she] needs more help with decoding words with vowel pairs." Seven parents described how they had tried to help their child succeed. For example, a parent of a first grader wrote:

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My daughter is currently at least six months behind her peers in learning to read and write and she and I have tried to help her catch on with sounding out words. I hope the clinic can get her on track with learning and help me learn to help her better.

Thus, in this study, parents established that the label “falling behind” was associated with concern that their child’s desire and effort to learn to read, coupled with their desire and ability to support their child’s effort, was not sufficient to help their child learn to read.

Concerned about mental health. Parents labeled concerns about the effect struggling to read was having on their child’s mental health. Sixty percent ($N=26$) of parents identified emotional and behavioral patterns in their child such as a loss of confidence, mounting frustration, increasing anxiety, reluctance to take risks, and growing discouragement. The cumulative and deleterious effect of struggling to read over time was evidenced by how parents in each grade level described their child’s mental health. Kindergarten parents used phrases like “beginning to feel insecure,” “getting frustrated because he just can’t remember letters or sounds,” “starting to affect her confidence.” After a year of struggle, first grade parents described their children using phrases such as “he wants to learn to read, but it seems so hard now that he says he doesn’t want to try,” “she’s embarrassed that she cannot read,” and “she doesn’t have a lot of confidence anymore because she cannot keep up with school.”

Second and third grade parents at both the PLC and the CLC identified their child’s awareness of their reading performance compared with peers as an added source of distress. Parents labeled their children as feeling “embarrassed,” “nervous,” “worried about making mistakes,” and “completely anxious about” reading aloud in front of their peers. A second grade parent shared her daughter “struggles with realizing she isn’t at the level of her friends and she wants to be able to read so badly.” Wrote a third grade parent, “She has always struggled

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academically. She still desires to learn and know what's going on but is now at the age where she is recognizing she is not as fast as most of her peers." A second grade parent shared her son was "now in counseling because of his low self-esteem" and a third grade parent noted, "we're starting to see signs of anxiety at school and waning interest and motivation in areas where he used to be so excited." The effect of struggling to learn to read on the mental health of students in this study amplifies findings in previous studies (Casey et al., 1992; Mugnaini et al., 2009) and underscores the urgency of early screening and intervention for all children who are at risk for reading failure.

Deteriorating attitude toward reading. Four parents expressed concern that their child did not consider himself or herself to be a reader and three others labeled their child as "not motivated by books anymore." For example, a second grade parent described her son's attitude toward reading as "why bother?" and attributed her son's refusal to read to his experience with repeated failure: "he refuses to try to because trying has not helped him learn to read." Several parents ($N = 6$) lamented their child now had difficulty focusing during reading lessons or were beginning to act out. For example, a second grade parent stated her daughter "complains her brain gets 'wiggly'" and a first grade parent explained her daughter "had problems arguing with the teacher because she does not understand what the teacher is asking her to do during reading lessons." This third grade parent's description of her son's attitude toward reading captures the spiraling negative effect of nearly four years of reading failure:

[My son's] reading habits are NONE if he can help it. He still likes school, but he is so frustrated. He can't sound out words. He will pretend to know a word and instead of sounding it out, he makes up a word that could be it. Recently he has begun saying that he read certain pages when he really skipped the pages altogether.

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In this study, the metanarrative that emerged from parents' responses to open-ended prompts reflected their awareness of the negative effects their child's struggle to learn to read – as early as six months into kindergarten – was having on their child's academic progress, mental health, and, ultimately, attitude toward reading. While parents described their children using seemingly pejorative terms like falling behind, struggling, frustrated, embarrassed, anxious, worried, not motivated, they coupled the labels with descriptions of the desire and effort their child put forth to learn to read. The design of this study means the parent voices captured reflect a population of parents who sought clinical intervention for their children, 34% ($N=15$) of whom confirmed on the application a family history of dyslexia, potentially biasing the finding. Nevertheless, the urgency of the parent voices in this study reflects the urgency in the nationwide advocacy movement pushing for legislation to require early screening and early intervention (Decoding Dyslexia, n.d.). Like the second grade parent who wrote, "I tried to get her in for spring but was unable and would gladly volunteer for the program in any way I was needed to get her in! Please she needs the help this summer to catch up!" parents across the nation are desperate to access early intervention for their struggling readers to avoid the academic decline, negative effects on mental health, and deteriorating attitudes toward reading that may result from struggling to learn to read.

Classroom Teachers' Responses to Open-Ended Prompts

Eleven of the CLC student files (55%) and 17 PLC student files (71%) contained information provided by student's classroom teachers. The PLC requested the student's teacher complete a teacher questionnaire (see Appendix E), which included two open-ended prompts relevant to research question 1: "Please describe the students' reading and writing behavior in terms of strengths and needs," and "In your opinion, what specific skills should be the focus of

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the student’s reading and writing intervention plan?” The CLC application did not contain a prompt for the applicant’s classroom teacher; nevertheless, 11 CLC clinical files contained information from classroom teachers, quoted on the parent application in response to either the open-ended prompt, “If there is any other information about the student or his/her/their family that would be helpful to know, please state so in the space below” or the prompt “Have there been any changes in concerns over student's literacy development? If yes, please explain.” Unlike the PLC teacher questionnaires were filled out by the classroom teacher, the CLC applications contained second-hand teacher information, quoted by the parents. Heeding Atkinson and Coffey (2004) caution that researchers “cannot treat records – however ‘official’ – as firm evidence of what they report” (p. 58) analysis of the teacher labels was limited to content analysis, rather than thematic analysis.

Sixty-four percent ($N = 28$) of the intervention files contained information from classroom teachers about the students’ needs and areas of strengths as readers. The results of the content analysis are presented within the framework of the SVR and displayed in Table 5.

Table 5

Students’ Needs According to Classroom Teachers (N = 28)

	Kindergarten	Grade 1	Grade 2	Grade 3	Total
Word Recognition Skills					
Decoding	3	2	2	1	8
Multisyllable Word Solving	0	2	1	5	8
Letter-Sound Knowledge	0	1	0	0	1
Blending	0	3	0	1	4
Sight Words	0	4	2	1	8
Phonics	0	1	1	1	3
Phonological Awareness	0	0	0	1	1
Fluency	0	2	0	3	5
Linguistic Comprehension Skills					
Comprehending Texts	0	1	0	1	2

Note: Missing data = 16 files.

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Only two students needed support with comprehending text and the teacher of the grade 3 student wrote, “he struggles to comprehend a text because he focuses so much on decoding that he cannot retain the story.” In fact, five teachers identified linguistic comprehension as an area of strength, using phrases such as “terrific when talking about books,” and “outstanding vocabulary,” “expresses sophisticated ideas during read aloud” to describe students in grade 1, grade 2, and grade 3, respectively. According to classroom teachers, aspects of word recognition skills, or the ability to transform print into spoken language, dominated the area of reading intervention needed by 28 students. This finding corroborates the finding of the content analysis of the parents’ responses to the multiple-choice prompts: once again, weaknesses in the decoding aspect of the SVR was the most frequently cited reason (95% of the teacher responses) for students needing clinical reading intervention.

Formation of the Comparative Groups

Analysis of the parents’ multiple-choice selections, parents’ open-ended responses, and teacher responses from both the CBC and PLC found that all 44 students in this study’s instrumental case could be accurately labeled as struggling readers. Content analysis of parent and teacher responses found the primary reason for a student being labeled a struggling reader stemmed from weaknesses in the word recognition, or decoding, level of the SVR. Thematic analysis of parent responses revealed more nuanced implications of labeling their child a struggling reader: struggling to learn to read was causing academic decline, as early as kindergarten, despite the child’s efforts and despite the parents’ efforts; struggling to learn to read was affecting students’ mental health; and struggling to learn to read was affecting students’ attitudes toward reading.

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Word-level reading skills fall on a continuum, with dyslexia at the far end of the continuum (Pennington & Lefly, 2001). Therefore, all students with dyslexia are struggling readers, but not all struggling readers are struggling because of dyslexia. Students in this study were not recruited because of a diagnosis of dyslexia, but rather because they sought clinical reading intervention from a community-based literacy clinic or a private literacy clinic. By necessity, information found in various locations within the parent application (CLC), parent questionnaire (PLC), or clinician notes (CLC and PLC) had to be used to determine which of the students should be labeled as being at risk for dyslexia or as readers with dyslexia.

In this study, the decision to label a student as being at risk for dyslexia or as a reader with dyslexia followed guidelines set forth by The National Center for Learning Disabilities (NCLD) and Individuals with Disabilities in Education Act (IDEA, 2004). The student's file needed to contain either a diagnosis of dyslexia by a qualified professional or the identification of a specific learning disability (SLD) in reading described as dyslexia by an education evaluation team.

Qualified professionals include neurologists, pediatricians, education psychologists, and clinical education therapists (NCLD, 2017). In this study, three students were diagnosed with dyslexia at a pediatric developmental clinic and eight were diagnosed by the director of the PLC, a clinical education therapist. Of the four kindergarten students diagnosed at risk for dyslexia, three students were diagnosed at risk by the director of the PLC and one by a clinical education therapist at a learning center.

Six students qualified for special education services because of a SLD in reading and were labeled as having dyslexia during discussions with IEP teams. In the CLC student files, the label dyslexia was either noted in parents' open-ended responses to the CLC's prompt, "Has the

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student ever had psychological assessment (intelligence or mental health evaluation)? If yes, please describe” or in the IEP Information/Summary section of the CLC clinicians’ final reports. For example, a second grade parent wrote on the application, “My daughter has an IEP for an SLD in Reading because she has an auditory processing disorder. The team at [her school] said she has dyslexia.” In the PLC student files, the label dyslexia was either noted on the parent questionnaire or in the clinician’s notes. It should be noted that seven other students qualified for special education services with SLDs, but no evidence was found in their clinical files that the SLDs were labeled as dyslexia by the education evaluation teams: as a result, they are included in the struggling reader group in this study.

In summary, Table 6 contains information about the method of diagnosis for the 21 students labeled as readers with or at risk for dyslexia. In total, seventeen students were described as readers with dyslexia and four students were described as at risk for dyslexia, placing 21 students in the dyslexia category. The remaining 23 students were placed in the struggling reader category.

Table 6

Source of Diagnosis of Dyslexia or At Risk for Dyslexia (N = 21)

Grade Level	Pediatrician	Clinical Education	
		Therapist	IEP Team
Kindergarten	0	4	0
Grade 1	1	2	1
Grade 2	1	4	3
Grade 3	1	2	2

The comparative groups – struggling readers and students with or at risk for dyslexia – were used to answer research questions 2, 3, and 4. Table 7 displays the grade level breakdown of the comparative groups across the grade levels.

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Table 7

Grade Level Composition of Instrumental Case (N = 44)

	Struggling Readers		Students With or At Risk for Dyslexia	
	<i>n</i>	%	<i>n</i>	%
Kindergarten	5	21.7	4	19.0
Grade 1	9	39.1	4	19.0
Grade 2	4	17.4	8	38.1
Grade 3	5	21.7	5	23.8
Total	23		21	

Note: Totals of percentages are not 100 for each comparative group because of rounding.

The instrumental case achieved balance between struggling readers ($N = 23$) and readers with or at risk for dyslexia ($N = 21$) and between males ($N = 24$) and females ($N = 20$). Within the two groups, the proportion of males and females is similar. The struggling reader group was 57% male ($N = 13$) and 44% female ($N = 10$) and the group of readers with or at risk for dyslexia was 52% male ($N = 11$) and 48% female ($N = 10$). Because the gender proportion was so similar between and within the two groups, and because the sample sizes by gender were relatively small, data were not disaggregated along gender lines.

Another goal was to have an equal number of struggling readers and readers with dyslexia at each grade level in this study's instrumental case. The distribution of struggling readers ($N = 3$) and readers at risk for dyslexia ($N = 4$) in kindergarten is relatively balanced and there is an equal distribution of struggling readers and readers with dyslexia in grade 3 ($N = 4$ in each group). Typically, dyslexia is not diagnosed until a child has failed to learn to read as expected, usually in second grade or later. This may be the explanation for why Grade 1 has over twice as many struggling readers ($N = 9$) as readers with dyslexia ($N = 4$). The distribution flips

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in grade 2, with twice as many students with dyslexia ($N = 8$) as those readers who struggle ($N = 4$).

Summary

Research question 1 addressed the labels used to describe readers who sought clinical reading intervention. Content analysis of parents' responses to multiple-choice prompts found all of the parents indicated their child struggled with decoding skills and one-fourth indicated their child struggled with both decoding skills and comprehension. While there is no denying the importance of comprehension in learning to read, not a single parent indicated comprehension alone was the reason they sought clinical reading intervention for their child. Thus, for these parents, one meaning of the label struggling reader, first and foremost, is readers who struggle with decoding skills. Thematic analysis of parents' responses to open-ended prompts yielded three themes about the effects of struggling to learn to read. First, being a struggling reader meant their child was experiencing academic decline despite their child's initial enthusiasm for and effort to learn to read and despite their effort as a parent to support their child. Second, the resulting academic decline was leading to children struggling with mental health challenges as early as kindergarten and for several to seek counseling. Third, parents noted the child's struggle to maintain a desire to learn to read. Analysis of classroom teachers' comments confirmed aspects of word recognition skills prompted the need for reading intervention. Thus, the label struggling reader meant struggling to learn to read because of difficulty learning to decode and, as importantly, struggling with the academic and emotional results of that struggle. Next, the results of the analysis of assessment data found in clinical files is presented.

Section 2: Decoding Skills and Language Comprehension Similarities

The Simple View of Reading (SVR; Gough & Tunmer, 1986; Hoover & Gough, 1990) provides a starting point for understanding the factors involved in reading comprehension difficulties, and provides a starting point for determining what, if any, markers distinguish a reader with dyslexia from those of a struggling reader. As the SVR proposes, reading comprehension difficulties may be a result of poor word-level reading skills, poor language comprehension skills, or both. The SVR also provides a framework for presenting the findings from research questions 2 and 3, beginning with reading comprehension levels, followed by language comprehension skills, and then word-level reading skills.

Reading Comprehension

Forty-two clinical intervention files contained information about students' reading comprehension levels. The clinicians used reading inventories from four assessment systems to gather formative assessment data and to monitor student progress. By design, a reading inventory is not a standardized or norm-referenced tool. Norm-referenced reading tests (e.g. the Gates-MacGinitie (2000) and the Brigance (1977)) require administration by licensed diagnosticians, and are typically administered through initial and triannual IEP processes. In contrast, the reading inventories and assessments in the clinical intervention folders were typical of the types used by classroom teachers and clinicians to gather data for formative assessment and progress monitoring purposes. The four assessment systems were not standardized or norm-referenced, which poses a threat to validity. Twelve students were assessed using the *Developmental Reading Assessment 2* (DRA2; Beaver, 2006), 11 using the *Qualitative Reading Inventory* (QRI; Leslie & Caldwell, 2016), 14 using the *Diagnostic Reading Inventory* (DRI; Scott & McCleary, 1993), and three using the *Benchmark Assessment System* (BAS; Fountas & Pinnell, 2016). Two

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students at risk for dyslexia were not able to read enough words to engage in a reading comprehension assessment. All four assessments required the student to read aloud grade level-calibrated passages and answer prompted reading comprehension questions. In addition, the DRA, BAS, and QRI assessed the student's ability to retell the passage.

All four assessment systems contained guidelines for scoring and determining the students' reading level. The reading level was used to determine the student's distance from grade level expectation. Scores from all four reading assessment systems were entered into an SPSS data file using a 4-point scale (*at grade level, below grade level, far below grade level, significantly far below grade level*). The criteria for each point on the scale for each grade level is included in Table 8.

Only two students in the study, both struggling readers, could comprehend *at grade level*. Seventeen (40%) comprehended *below grade level*, 10 (25%) comprehended *far below grade level*, and 13 (33%) *significantly far below grade level*. The mean reading comprehension level for struggling readers was between *below grade level* to *far below grade level* ($M = 1.41, SD = 0.85, N = 22$) and higher than the mean for readers with or at risk for dyslexia, which was between *far below grade level* and *significantly far below grade level* ($M = 2.25, SD = 0.85, N = 20$). Figure 2 displays this disparity in distance from grade level between struggling readers and readers with or at risk for dyslexia. Of the readers not comprehending at grade level, 12 out of 18 (67%) struggling readers were in the *below grade level* category whereas only five of the 20 readers with or at risk for dyslexia (25%) were in the *below grade level* category and 15 were in the *far below* or *significantly far below grade level* category. In grade 1, this represents the difference between just learning to decode and comprehend passages with picture support such as, "I can hop. See me hop. I can run. See me run" (QRI, 2016, pp. 99-100) and being able to

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read and comprehend a passage at an end-of-kindergarten such as, “I can read a book. I can help Mom cook. I can ride my bike. I can go on a hike” (QRI, 2016, p. 118).

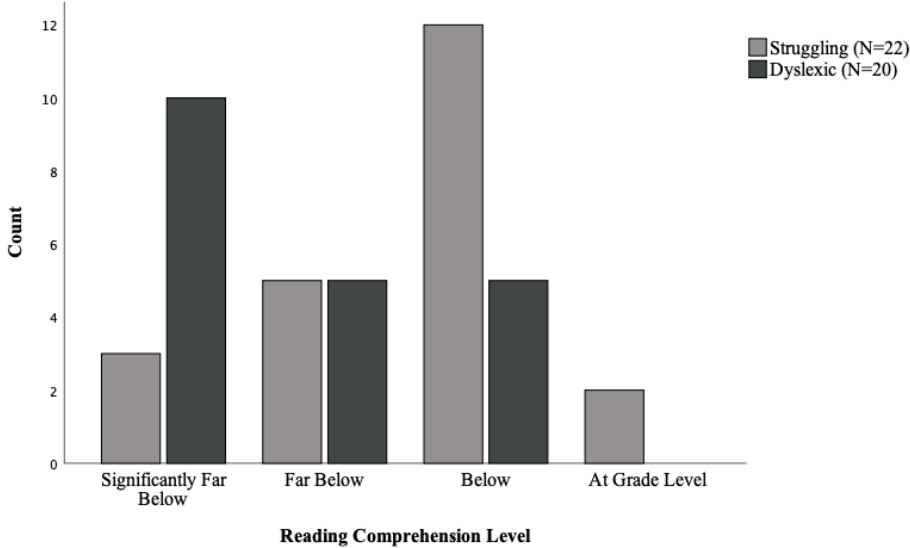


Figure 2: Reading Comprehension Levels by Comparative Group.

A closer look at the reading levels of each group by grade level in Table 8 indicates that the struggling readers comprehended at comparatively higher reading levels at every grade. None of the kindergarten students in either group could comprehend at grade level. However, three struggling readers could comprehend pre-primer level texts while none of the readers at risk for dyslexia could comprehend sentences. The first grade struggling readers were also closer to grade level than dyslexic readers. Six struggling grade 1 readers (66%), comprehended at an end-of-kindergarten level whereas only one grade 1 reader with dyslexia could. All of the readers with dyslexia in grade 3 read at a grade 1 reading level or lower. The widening gap in the reading comprehension levels of readers with dyslexia as the grade levels increased is indicative of the large gap in reading ability and experience students with dyslexia must make up to reach the level of their typically reading peers (Hiebert & Taylor, 2000; Torgesen, 2002).

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Table 8

Reading Comprehension Levels (N = 44)

Grade Level	Reading Comprehension Level	Struggling Readers		Students With or At Risk for Dyslexia	
		<i>n</i>	%	<i>n</i>	%
Kindergarten	Below: Pre-Primer	3	60.0	0	0
	Far Below: Decode/comprehend words	1	20.0	2	50.0
	Significantly Far Below: Unable to decode	0	0	2	50.0
	Missing	1	20.0	0	0
Grade 1	Below – Kindergarten End	6	66.7	1	25.0
	Far Below – Kindergarten Beginning	1	11.1	0	0.0
	Significantly Far Below – Pre-Primer	2	22.2	3	75.0
Grade 2	At Grade Level	1	25.0	0	0
	Below – Grade 1	2	50.0	4	50.0
	Far Below – Kindergarten	1	25.0	0	0
	Significantly Far Below – Pre-Primer	0	0	3	37.5
	Missing	0	0	1	12.5
Grade 3	At Grade Level	1	20.0	0	0
	Below – Grade 2	1	20.0	0	0
	Far Below – Grade 1	2	40.0	3	60.0
	Significantly Far Below – Kinder	1	20.0	2	40.0

Note: Percentages calculated by grade level within each comparison group. Totals of percentages are not 100 for every grade level because of rounding.

Analysis of students’ reading levels established that all but two students in this study had reading comprehension difficulties and raised questions about what factors – word recognition skills and language comprehension skills or both (Gough & Tunmer, 1986; Hoover & Gough, 1990) – led to below grade level reading comprehension. Thematic and content analysis in question 1 found all parents sought clinical intervention for their children primarily because of word-level reading difficulties and, in addition, 25% sought clinical intervention for comprehension difficulties as well. It may be their child’s decoding problems were more apparent to parents compared to their reading comprehension difficulties. Though most reading disabilities are associated with deficits at the word reading level (Scarborough, 2001; Kilpatrick,

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2015), reading comprehension can also be impaired by weaknesses in the language comprehension level, especially beyond grade 2, when reading material becomes increasingly complex. Thus, an examination of students' language comprehension levels is presented next.

Language Comprehension Factor

The language comprehension factor of the SVR is understood to be affected by a student's background knowledge, vocabulary level, understanding of the syntactic and semantic aspects of language structures, skill with verbal reasoning, and literacy knowledge (Scarborough, 2001). As Scarborough (2001) explains, "reading comprehension deficits are essentially oral language limitations" (p. 25). For this reason, when students display reading comprehension difficulties, Kilpatrick (2015) recommends the use of two analysis questions, the first one addressing the language comprehension aspect of the SVR: "Would he understand it if you read it to him?" (p. 53).

Twenty-seven clinical intervention files contained information about students' listening comprehension skills from six sources. The *Diagnostic Reading Inventory* (Scott & McCleary, 1993) was used to assess six students' ability to understand and interpret oral passages by having the student listen to a grade level passage and answer questions orally. After administering the *Qualitative Reading Inventory* (QRI; Leslie & Caldwell, 2016) to ten students, all of whom scored well below grade level, the clinicians chose to read aloud grade level passages to students to assess listening comprehension. The *Developmental Reading Assessment* (Beaver, 2006) was used in the same way as the QRI to assess the listening comprehension level of four students. Four students were assessed during informal interactive read aloud lessons during which the clinician read aloud a grade level text and asked implicit and explicit comprehension questions to determine students' listening levels. One clinician read aloud a grade level comprehension

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passage from *Scholastic Success with Reading Comprehension* (Wolfe & Hendron, 2002).

Finally, IEP goals, with present levels of performance scores specific to listening comprehension, were found in two intervention files.

In addition, 15 files contained information about students' vocabulary level determined by two assessments. The *Critchlow Verbal Language Scales* (Critchlow, 1996) assessed 11 students' vocabulary strength by asking the students to say the opposite of a series of words. The number of correct pairs before making five consecutive errors determined the students' vocabulary grade level. The *Peabody Picture Vocabulary Test* (PPVT; Dunn & Dunn, 2018), a standardized measure that determined a student's receptive vocabulary by showing four line drawings and directing the student to point to the word presented aurally by the examiner, provided a quick estimate of four students' verbal ability. Two files lacked information about the students' language comprehension levels.

Scores from all eight sources of data about students' listening comprehension levels and vocabulary levels were entered into an SPSS data file using a 5-point scale (*far below grade level, below grade level, at grade level, above grade level, far above grade level*) to determine students' language comprehension levels. The results are presented in Table 9.

Table 9

<i>Language Comprehension Levels</i>	Struggling Readers <i>N</i> = 23		Students With or At Risk for Dyslexia <i>N</i> = 21	
	<i>n</i>	%	<i>n</i>	%
Far Below Grade Level	0	0	1	4.8
Below Grade Level	4	17.4	6	28.6
At Grade Level	15	65.2	6	28.6
Above Grade Level	2	8.7	5	23.8
Far Above Grade Level	1	4.3	2	9.5
Missing	1	4.3	1	4.8

Note: Totals of percentages are not 100 for each comparison group because of rounding.

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The mean language comprehension level was *at grade level* for both the struggling reader group ($M = 0$, $SD = 0.69$) and the readers with or at risk for dyslexia ($M = 0.10$, $SD = 1.16$). Represented in these data were seven students who spoke Spanish or Vietnamese at home and attended English only schools. Five of these students scored *at grade level*, one scored one year *above grade level*, and one scored one year *below grade level*. Also represented were six students who attended dual immersion schools. Five students scored *at grade level* and the sixth scored *far below grade level*. In an article about the assessment of reading difficulties in emergent bilingual students, Geva and Farina (2012) debunked the myth that emergent bilingual students have difficulty with reading comprehension solely because of their lack of English proficiency, and lack of background knowledge and cultural knowledge. Some emergent bilingual students “are poor comprehenders whose difficulties are tied primarily to poor word reading skills and others are poor comprehenders because of a language impairment” (Geva & Farina, 2012, p. 5). In total, 11 of the 13 students learning in two languages scored *at grade level* or *above grade level* in language comprehension factor, suggesting their reading comprehension levels stemmed from weaker word-level reading skills.

For the 31 students with *at grade level* or *above grade level* language comprehension skills and *below grade level* reading comprehension skills, their reading comprehension issues are likely a result of weak word-level reading skills (Gough & Tunmer, 1986; Hoover & Gough, 1990; Kilpatrick, 2015). For the 11 students with *below grade level* language comprehension skills, subtle language problems, in addition to weak word reading level skills, could have impacted their reading comprehension (Hulme & Snowling, 2011). Learning in more than one language is most likely a confounding variable (Geva & Farina, 2012) in the language comprehension levels of two of the 11 students. That the mean language comprehension level

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was *at grade level* for both groups lends credibility to the parents' assertions that their children struggled to read primarily because of word-level reading difficulties, not linguistic comprehension difficulties. A closer examination of the word recognition skills, specifically the sight recognition skills of the SVR, is presented next.

Word Recognition Skills Factor: Sight Recognition

The second analysis question Kilpatrick (2015) recommends asking when students display reading comprehension difficulties addresses word-level reading is: "Does his oral reading seem effortless?" (p. 53). Oral reading fluency is typically assessed using both word identification tasks and sentence level or passage level oral reading assessments. Word identification tasks are used to determine if the word is in a student's sight vocabulary. If so, the word is "consistently produced correctly, instantly, and effortlessly, without benefit of context" (Kilpatrick, 2015, p. 27).

Again, because of the design of the study, no standardized word-level reading assessment was used across the clinical intervention files. Instead, clinicians used a variety of assessment tools. Thirty-nine clinical intervention files (89%) contained information about students' word-level reading skills. The *San Diego Quick Assessment of Reading Ability* (La Pray, 1969) was used to assess 14 students' ability to recognize words out of context. The test consisted of 13 graded word lists, 10 words per list, from pre-primer to eleventh grade. Word lists from the QRI (Leslie & Caldwell, 2016) were used to determine 13 students' ability to automatically identify words out of context using graded word lists of 17-20 words, pre-primer to high school. Six students were assessed using the informal graded word recognition test from the DRI (Scott & McCleary, 1993) that consisted of reading 10 words per list, pre-primer to grade 8. Three students were assessed using the *CORE Phonics Surveys* (CPS; Consortium on Reading

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Excellence, 1999, 2008). Specifically, parts E-K were used to test students' ability to read both real and pseudowords, and part L was used to assess students' ability to read multisyllabic words. One student was assessed using a high frequency word list (Pinnell & Fountas, 2003). Clinician notes indicated two students at risk for dyslexia could not read any words in isolation.

Scores from all six sources of data about students' word-level reading skills (five assessments and clinician notes) were evaluated using the assessments' grade level criteria. Then scores were coded according to word-level reading ability and entered into an SPSS data file using a 6-point scale (*unable to decode words, pre-primer, kindergarten, grade 1, grade 2, grade 3*). The mean word-level reading skill level for struggling readers ($N = 18$) was *kindergarten* ($M = 3.00$, $SD = 1.28$) and for students with or at risk for dyslexia ($N = 21$), the mean word reading level was slightly lower ($M = 2.67$, $SD = 1.11$). This indicates more similarities than differences between the comparative groups.

A closer look at the students by grade level is presented in Table 10. Note, only one student, a grade 2 student, could read words out of context at grade level, and 37 (95%) were reading at least one year below grade level. This finding corroborated the finding in research question 1, that parents and classroom teachers correctly labeled the struggle to read as one originating from a word-level reading deficit.

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Table 10

Word-Level Reading Skills

Grade	Word Reading Level	Struggling Readers (<i>N</i> = 23)		Students With or At Risk for Dyslexia (<i>N</i> = 21)	
		<i>n</i>	%	<i>n</i>	%
Kindergarten	Pre-Primer	4	60.0	2	50.0
	Unable to Read	0	0	2	50.0
	Missing	1	20.0	0	0
Grade 1	Pre-Primer	5	55.6	4	100.0
	Missing	4	44.4	0	0
Grade 2	Grade 2	1	25.0	0	0
	Grade 1	2	50.0	4	50.0
	Kindergarten	0	0	1	12.5
	Pre-Primer	1	25.0	3	37.5
Grade 3	Grade 2	3	60.0	1	20.0
	Grade 1	0	0	1	20.0
	Kindergarten	2	40.0	2	40.0
	Pre-Primer	0	0	1	20.0

Note: Percentages calculated by comparison group within each grade level. Totals of percentages are not 100 for every grade level because of rounding.

The grade level analysis is more revealing. By the end of kindergarten, two students at risk for dyslexia could not read a single word, two students at risk for dyslexia could not read a pre-primer word list containing the words “see, play, me, at, run, go, and, look, can, here” (Consortium on Reading Excellence, 1999, 2008, p. 70) and four struggling readers were unable to automatically read a pre-primer word list containing the words “can, I, or, me, the, in, at, with, a, he, go, to, me, do, on, was, she” (Leslie & Caldwell, 2016, p. 91). All of the grade 1 students (*N* = 9) with available assessment data were already still learning to read at the pre-primer level, despite almost two years of literacy instruction. In grade 2, 75% of the struggling readers (*N* = 3) and 100% of the readers with dyslexia (*N* = 8) were at least one year below grade level. By grade 3, 100% of both groups were reading words in isolation at least one year below grade level. The

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distance from grade level grew wider in grade 3, with 40% of struggling readers ($N = 2$) and 80% ($N = 4$) of readers at risk for or with dyslexia reading two or more years below grade level.

The most dire finding about the word-level reading skills of students in this study is that 55% ($N = 22$) could not automatically and accurately read a pre-primer word list. This finding includes students in both groups in grades kindergarten to grade 3, as displayed in Figure 3.

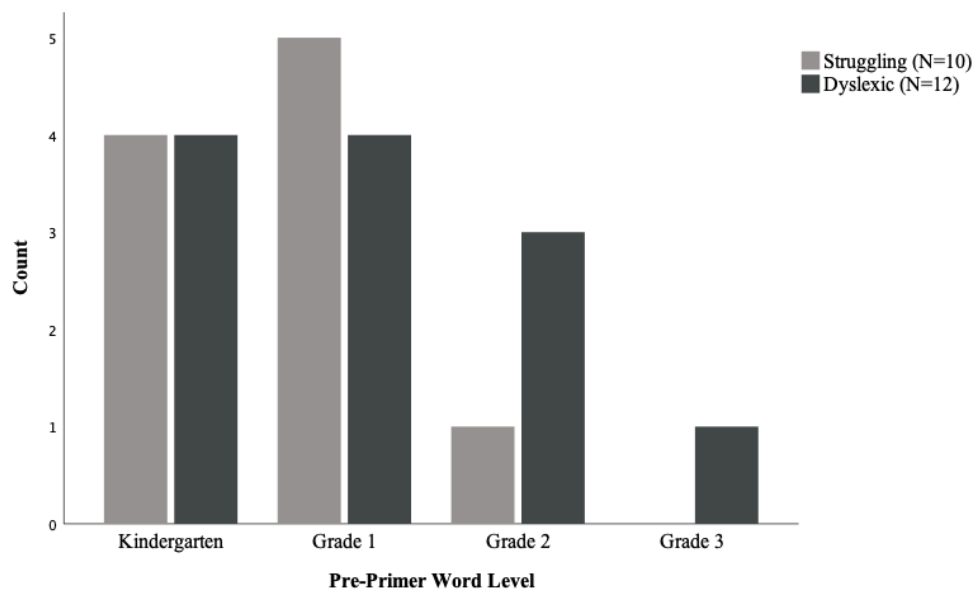


Figure 3. Pre-Primer Word Level Readers by Grade Level and Comparative Group.

Using a process of orthographic mapping, the encoding process of establishing a stable memory of spelling patterns (Ehri, 1995), typically developing readers are able to store a new word permanently in only one to four exposures from second grade forward (Castles & Nation, 2006; Share, 1999). In contrast, these 22 students at the end of kindergarten to grade 3 failed to read the pre-primer word lists despite *one to five years* of literacy instruction (two of the grade 2 students with dyslexia and the third grade student with dyslexia were retained). It is no wonder parents reported their children struggled with anxiety, lack of confidence, embarrassment, and increasing disinterest in learning to read.

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This finding points to the urgency of early screening, targeted and effective intervention, and progress monitoring to address students' needs as word level readers as early as the first months of kindergarten because "the most important key to fluent reading of any text is the ability to automatically recognize almost all of the words in the text" (Torgeson et al., 2003, p. 293). Without effective intervention, an at-risk reader almost invariably continues to read below grade level expectations (Torgesen & Burgess, 1998) and the window for the most effective intervention is pre-kindergarten to the end of first grade (Torgesen, 2004). Ten of the grade 1–3 students pre-primer word-level readers were receiving specialized academic instruction as a provision of their IEPs. This finding suggests either the type of intervention or the amount of intervention, or both, was not sufficient for these students to progress.

Word Recognition Skills Factor: Decoding

To better understand the students' word recognition difficulties at the decoding level, analysis of assessments focused on two skills required for the development of successful decoding skills – phonological awareness and phonics – was conducted.

Phonological awareness. While phonological manipulation tasks (deleting, substituting, or reversing sounds in spoken language) are the best predictors of word-level proficiency (Caravolas et al., 2012; Kilpatrick, 2012a, 2012b), neither clinic used phonological manipulation tasks to measure phonological awareness. Instead, the PLC clinician used phonological awareness subtests from the *Phonological Awareness Screening Test* (PAST; Adams, Foorman, Lunberg, & Beeler, 1998) focusing on matching initial sounds, detecting rhymes, counting syllables, and phoneme segmentation to determine the student's level of phonological awareness. Twenty-one files contained PAST data. Clinicians from the CLC did not assess phonological awareness using an assessment tool but clinical notes about students' levels of phonological

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awareness were found in 19 student files. Four student files lacked phonological awareness data. In a study of the teachers' judgments of students' early literacy skills, Martin and Shapiro (2011) found that teachers tended to overestimate actual student performance, though less so for lower-achieving students than for typically-achieving students. In this study, clinicians with additional early literacy and clinical training than classroom teachers made judgements about students' phonological skills. Nevertheless, though unavoidable given the constraints of this study's design, the use of clinician judgement rather of student performance rather than an assessment tool poses a threat to validity.

Content analysis of the available data on phonological awareness for each student ($N = 40$) was conducted. Five students were labeled "strong" in all areas of phonological awareness by clinicians. Thirty-five students were weak in one of four areas: rhyming or rhyme detection ($N = 2$), phoneme segmentation ($N = 24$), phoneme isolation ($N = 9$), and phoneme blending ($N = 1$). Rhyming tasks involved asking students, after giving an example of a rhyming pair, to generate rhymes (for example, "What words rhyme with *cat*?") or detect rhymes (for example, "Do *cat* and *rat* or *cat* and *dog* rhyme?). Phoneme segmentation tasks involved asking students to count the number of sounds in a word (for example, "How many sounds do you hear in *cat*?") Phoneme isolation involved determining the position of a sound within a word. For example, a student may have been asked where the /t/ sound was in the word *put* or *tap*. Phoneme blending involved providing the individual phonemes in a word, for example, saying the sounds /h/ /o/ /t/ and expecting the student to respond with the word *hot*.

Again, this study found 35 students (88%) with existing phonological awareness data ($N = 40$) were weak in one of four phonological awareness areas. Previously, this study found 95% ($N = 39$) of the students, both struggling and readers at risk for or with dyslexia, had word

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recognition skill deficiencies. Given “deficiencies in phonological awareness are responsible for most word-level reading problems,” (Kilpatrick, 2015, p. 154), it makes sense that 88% of the students with available phonological awareness data ($N = 40$) had phonological awareness deficiencies.

This study identified the need for reading clinicians – and classroom teachers – to include a phonological screening assessment since providing reading intervention focused on phonics absent of phonological awareness training is ineffective (Vloedgraven & Verhoeven, 2007). Also, it would be wise to include an assessment of verbal short-term memory, which is the ability to retain a string of words, and to include a rapid automatized naming (RAN) assessment, which assesses the ability to quickly name aloud a series of familiar items on a page. Studies have established an association between early reading problems and deficiencies in short-term memory (Lieberman et al., 1977; Mann et al., 1980). Including both could help identify readers at risk for dyslexia, as verbal/phonological short-term memory is one of the core predictors of dyslexia (Ozernov-Palchik et al., 2017) and RAN has been shown to be robust precursors of dyslexia in children as young as age 3 (Puolakanaho et al., 2007).

This study found that both struggling readers and readers with and at risk for dyslexia had phonological awareness deficiencies. This study also found, however, that the type of phonological awareness deficiencies differed between the comparison groups, a finding that will be presented and discussed in Section 3.

Phonics. Clinicians from both clinics used the *CORE Phonics Surveys* (CPS; Consortium on Reading Excellence, 1999, 2008) to assess the phonics skills related to beginning reading including alphabet skills, letter sounds, and decoding skills. Thirty-one student files contained CPS data. Scores from the CPS were calculated according to the assessment specifications for

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mastery (14+ of 15 correct), strategic intervention (10-13 of 15 correct), and intensive intervention (0-9 of 15 correct). The earliest skill receiving a score of intensive was recorded for each student. Ten clinicians at the CLC used the *Basic Phonics Skills Test 3* (BPST; Shefelbine, 2006) instead of the CPS to measure letter name and letter sound identification, and reading words with phonic patterns. The earliest skill needing intervention (a score of 80% or below) was recorded for each student. Three student files lacked specific phonics data. Results are displayed in Table 11.

Table 11

Decoding Skill Level in Need of Intensive Intervention

Decoding Skill (Time of Expected Mastery)	Grade Level	Struggling Readers (<i>N</i> = 22)		Students With or At Risk for Dyslexia (<i>N</i> = 19)	
		<i>n</i>	%	<i>n</i>	%
Letter Names (Fall of Kindergarten)/ Letter Sounds (Winter of Kindergarten)	Kindergarten	0	0	1	5.3
CVC Words (Winter of Kindergarten)	Kindergarten	5	22.7	3	15.8
	Grade 1	1	4.5	3	15.8
	Grade 2	0	0	3	15.8
	Grade 3	0	0	1	5.3
Consonant Blends & Short Vowels (Winter of Grade 1)	Grade 1	3	13.6	0	0
	Grade 2	2	9.1	1	5.3
	Grade 3	0	0	2	10.5
Consonant Digraphs & Short Vowels (Winter of Grade 1)	Grade 2	0	0	2	10.5
R-Controlled Vowels (Winter of Grade 1)	Grade 1	2	9.1	0	0
	Grade 2	1	4.5	0	0
Long Vowel Spellings & Variant Vowels (Winter of Grade 1)	Grade 1	1	4.5	0	0
	Grade 2	0	0	1	5.3
	Grade 3	0	0	2	10.5
Low Frequency Vowel & Consonant Spellings (Winter of Grade 1)	Grade 3	2	9.1	0	0

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Multisyllable Words	Grade 2	1	4.5	0	0
(Winter of Grade 2)	Grade 3	4	18.2	0	0

Note: CVC= Consonant-Short Vowel-Consonant words; percentages calculated by comparison group within each grade level; totals of percentages are not 100 for each comparison group because of rounding; missing data = 3 files.

This study found none of the students had achieved mastery of grade level phonics skills and all ($N = 41$) of the students were in need of intensive intervention in phonics. Two kindergarten students scored at the intensive level in alphabet skills and letter sounds, a skill expected to be mastered by spring of kindergarten. Forty students scored at the intensive level (0-9 correct out of 15) in one of the levels of decoding skills expected to be mastered from winter of kindergarten through spring of grade 2. The results for the 40 students are presented in order the timeline of expected mastery from fall of kindergarten to spring of grade 2.

Fifteen students in grades K-3 (37%) needed intensive intervention in reading Consonant-Short Vowel-Consonant (CVC) words such as *sip*, *hog*, and *bat*, a skill expected to be mastered by winter of kindergarten. Eight students in grades 1-3 (20%) needed intensive intervention in reading words with consonant blends and short vowels such as *stop*, *silk*, and *spell*, a skill expected to be mastered by winter of grade 1. Two grade 2 students (5%) needed intensive intervention in reading words with consonant digraphs and short vowels such as *shut*, *wick*, and *match*, a skill expected to be mastered by winter of grade 1. Three grade 1 and 2 students (8%) needed intensive intervention in reading words with r-controlled vowels such as *form*, *dirt*, and *surf*, a skill expected to be mastered by winter of grade 1. Four students in grades 1-3 (10%) needed intensive intervention in reading words with long vowel spellings and variant vowels such as *key*, *boat*, and *haunt*, skills expected to be mastered by winter of grade 1. Two students in grade 3 (5%) needed intensive intervention in reading words with low frequency vowel and

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consonant spellings such as *kneel*, *sigh*, and *giant*, a skill expected to be mastered by winter of grade 1. Finally, five students in grades 2 and 3 needed intensive intervention with reading multisyllabic words such as *consent*, *admire*, and *depend*, a skill expected to be mastered by winter of grade 2.

This study found all of the students with available phonics data ($N = 41$) were in need of intensive intervention to achieve mastery of grade level phonics skills, as early as kindergarten, reinforcing the need for universal early screening and intervention. This finding is consistent with word-level reading difficulty being 100% of the parents' primary reason for referral, a finding of research question 1. This finding is also consistent with research question 2's findings about word recognition of sight words and phonological awareness levels.

Fluency

The examination of students' word-level reading skills began with Kilpatrick's (2015) question, "Does his oral reading seem effortless?" (p. 53). All three strands of word recognition from Scarborough's *Reading Rope* (2001) – sight recognition, phonological awareness, and decoding – were examined to answer this question. This study found that 95% of students' sight word recognition skills ranged from one to three and a half years below grade level. Only one student could read words from a list at grade level. "Word-level reading fluency is a key factor that distinguishes skilled readers from struggling readers" (Kilpatrick, 2015, p. 202), confirming students in this study were struggling readers. A closer look at students' decoding skills examined phonological awareness levels and found 39 (89%) had below grade level phonological awareness skills. In addition, an examination of students' phonics skills revealed all of the students with existing phonics data ($N = 41$) were in need of intensive intervention in phonics.

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In addition to using word identification tasks, sentence level or passage level oral reading assessments were administered answer Kilpatrick's (2015) question, "Does his oral reading seem effortless?" (p. 53). Fluency assessments help determine how well readers orchestrate both factors of the SVR, word recognition and language comprehension. Typically developing students can often read words three times faster than students with reading disabilities, regardless if they are reading from a list or reading in context (Jenkins, Fuchs, van den Broek, Espin, & Desno, 2003). Fast and accurate word recognition does not always result in high levels of comprehension, nor does slow, less accurate word recognition necessarily result in poor comprehension (Paris et al., 2005). But slow reading rate and lack of prosody may indicate a student requires so much effort to read quickly and accurately that little working memory can focus on prosody or comprehension.

Forty-two intervention files contained information about students' fluency. Sixteen files contained only fluency information reported by parents who selected "reads very slowly" on the PLC parent questionnaire and one parent of a child with dyslexia noted in the margin that her daughter "reads in a stop/start style." Another parent of a child with dyslexia commented her son "looks at each word like it is the first time he's seen it." Seven students were assessed using the DRA's oral reading fluency rubric (Beaver, 2006) and all seven were placed in the intervention category (little or no expression, mostly word-by-word). Two clinicians used the timed portions of the word lists from the QRI (Leslie & Caldwell, 2016) to determine word-identification speed and automaticity. Nine students were assessed using the QRI word passages. Low percentages of correct words read automatically, slow fluency rates, and clinician comments such as "lacked prosody, whispers first sound and then whispers the sound of each letter in every word" and

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“lacked smoothness, read in a monotone voice” indicated 10 of the 11 students assessed using the QRI lacked fluency.

In addition, two students were assessed using three-minute fluency assessments (Rasinski & Padak, 2005) and both scored in level one (reading does not sound natural, reads word-by-word in a monotone voice, frequently hesitates, reads slowly). Five teachers described students’ reading fluency as slow or very slow on the PLC’s teacher questionnaire. One second grade student with dyslexia read so slowly on the BAS (Fountas & Pinnell, 2016) the clinician wrote in the margin, “Almost stopped her because she looked and sounded worn out from reading.” Only one student in the study, a third grade struggling reader assessed using QRI passages, read a grade level passage fluently, an achievement underscored in the clinician’s notes: “Read with expression, stopped to decode multisyllabic words, but then reread the sentences at a good pace.”

Thus, from these various sources, it is evident that 41 students (93%) in this study (2 files were missing data and one student read fluently) were dysfluent readers, a finding that makes sense given students’ previously reported below grade level sight word recognition skills, phonological awareness levels, and phonics skills.

A comparative analysis of fluency rates – beginning with letter naming rates for kindergarten students, to word-level reading rates, to passage level reading rates and prosody scores – should be part of this study. However, none of the PLC intervention folders contained fluency assessments. Therefore, this study does not include a comparative examination of fluency of struggling readers and readers with or at risk for dyslexia.

Encoding

The initial pass of the intervention files revealed both the PLC and CLC utilized spelling assessments to inform clinical reading intervention. Though not explicitly one of the factors in

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the SVR, spelling assessments can provide a window into a student's phonological and orthographic skills, which underpin word-level reading skills factor. Studies have linked the development of decoding and encoding ability in students to their underlying phonological and phonemic awareness knowledge (Adams, 1990; Blachman et al., 1994, 2000; Snow et al., 1998) and orthographic knowledge (Treiman, 2017). Parent applications from both clinics contained questions about spelling, and 91% indicated their child had difficulty with spelling. Thus, analysis of spelling data was conducted.

Spelling data were found in 41 files (93%) and came from five sources: the PAST's (Adams et al., 1998) *Representing Phonemes with Letters* ($N = 3$); the Jordan's (Jordan, 2000, p. 102) *Dictated Spelling* list ($N = 7$); the DRI's (Scott & McCleary, 1993, p. 140) *Diagnostic Spelling Test A* ($N = 9$); the Words Their Way's (Bear, Invernizzi, Templeton, & Johnston, 2016, p. 319) *Primary Spelling Inventory* ($N = 18$); and the Word's Their Way's (Bear et al., 2016, p. 323) *Elementary Spelling Inventory* ($N = 2$). Two students at risk for dyslexia in kindergarten did not know enough letters to administer a spelling assessment. No spelling information could be found in files of three students.

First, the spelling assessments were scored according to each assessment's scoring guidelines to determine the student's spelling grade levels. The PAST, Jordan, and DRI utilize a correct or incorrect scoring method to determine spelling grade level. The *Primary Spelling Inventory* and the *Elementary Spelling Inventory* (Bear et al., 2016), utilize a two scoring methods, the power score and the feature guides score. The power score is a correct or incorrect scoring method. The features guides score is scoring method that gives credit for the orthographic features the students know to determine spelling grade level. To insure all of the spelling assessments found in students files were scored using a consistent correct or incorrect

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method, the power score was used to determine spelling grade level according to scoring guidelines (see Bear et al., 2016, pp. 30, 35). Then scores were coded according to spelling ability and entered into an SPSS data file using a 6-point scale (*unable to spell words, pre-primer, kindergarten, grade 1, grade 2, grade 3*).

Table 12

Spelling Skill Levels

Grade	Spelling Level	Struggling Readers (<i>N</i> = 20)		Students With or At risk for dyslexia (<i>N</i> = 21)	
		<i>n</i>	%	<i>n</i>	%
Kindergarten	Kindergarten	1	33.3	0	0
	Pre-Primer	3	66.3	2	50.0
	Unable to Spell	0	0	2	50.0
Grade 1	Grade 1	3	37.5	0	0
	Kindergarten	4	50.0	2	50.0
	Pre-Primer	1	12.5	2	50.0
Grade 2	Grade 2	3	75.0	0	0
	Grade 1	1	25.0	8	100.0
Grade 3	Grade 2	3	75.0	3	60.0
	Grade 1	1	25.0	1	20.0
	Kindergarten	0	0	1	20.0

Note: Percentages calculated by comparison group within each grade level; missing data = 3 files.

The results for the 41 participants with spelling data are displayed in Table 12 by grade level. Seven students (17%) – all struggling readers – spelled on grade level. No students with or at risk for dyslexia spelled on grade level. Seventy-one percent of the students with or at risk for dyslexia (*N* = 15) were a year below grade level compared with 55% of the struggling readers (*N* = 11). The mean spelling level for struggling readers (*M* = 2.58, *SD* = 1.12) and readers with or at risk for dyslexia (*M* = 2.29, *SD* = 1.23) was between *kindergarten* and *grade 1*, with struggling

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readers slightly higher than dyslexic readers. This finding is consistent with the findings regarding word-level reading skills, phonological awareness levels, and phonics deficiencies.

Second, spelling assessments were scored by calculating a letter distance score for each spelling to determine the distance between the student's spelling and the conventional spelling. The method was described by Treiman et al. (2019) in a study in which they found that as early as the end of kindergarten, "learners of English have some knowledge about which spellings are appropriate for specific words or positions within words" (p. 422). This means that in addition to using phonological awareness and letter-sound knowledge, they also use knowledge of word-specific orthographic forms.

Treiman et al. (2019) recommended using a free computer program to calculate the scores, but given this study's small sample size and five sources of assessment data, it was more expedient to calculate the scores manually, following the process outlined in the study. First, the letter distance was calculated as described by Levenshtein (1965): a penalty of 1 was set for each insertion, deletion, and substitution, requiring the letters to be in the correct order. No penalty was taken for letter reversals (for example, writing *b* for *d*). During the scoring process, 32 students reversed letters (61% of the struggling readers and 85% of the readers with or at risk for dyslexia). Then, the reciprocal was calculated, $1/(1 + d)$, where *d* is the Levenshtein distance because, according to the authors, "This reciprocal Levenshtein score provides a more intuitive measure in that higher values correspond to better spellings" (Trieman et al., 2019, p. 439). Table 13 shows one student's spelling and the score for each.

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Table 13

Spellings of Sample Student and Scores for Each Spelling

Target	Spelling	Letter Distance (Levenshtein Score)	Reciprocal Levenshtein Score
we	we	0	1.00
can	can	0	1.00
jump	jummp	1 (1 insertion)	0.50
foot	foot	0	1.00
help	halp	1 (1 substitution)	0.50
baby	baddy	1 (1 substitution, no penalty for reversal)	0.50
mother	mhter	2 (1 substitution, 1 deletion)	0.33
play	paly	2 (2 substitutions)	0.33
come	cum	2 (1 substitution, 1 deletion)	0.33
dark	bork	1 (1 substitution, no penalty for reversal)	0.50

Finally, the reciprocal Levenshtein scores across 10 words per student were averaged and calculated as a percentage. Some of the five sources of spelling data in this study contained more than 10 words: in those cases, the first 10 words were used from the student's assessment.

Reciprocal Levenshtein scores for each student were entered into an SPSS data file. The file included scores for 19 struggling readers and 19 readers with or at risk for dyslexia. The two students who could not spell were excluded. Four files were missing spelling data.

The Levenshtein scores revealed the mean distance between the student's spelling and the conventional spelling was further apart for students with or at risk for dyslexia ($M = 63.00$, $SD = 19.80$, $N = 19$) than for struggling readers ($M = 73.05$, $SD = 15.89$, $N = 19$). This means that when the struggling readers misspelled words, their errors were closer to conventional spelling than when students with or at risk for dyslexia made errors. The difference in distance from conventional spelling by the comparative groups is further explored in section 3.

Summary

Research question 2 focused on the similarities in decoding skills and language comprehension between the comparative groups. Analysis of assessment data, clinician notes,

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and parent and teacher comments indicated a number of similarities. The reading comprehension level of all but one student was at least one year below grade level. The mean language level for the students was at grade level, with more of the struggling readers than readers with or at risk for dyslexia at or above grade level. The word recognition factor of the SVR was primarily responsible for students' poor reading comprehension levels. Nearly all of the students had below grade level word recognition skills and more than the majority were unable to automatically read a pre-primer word list accurately. All but five students had phonological awareness weaknesses and none of the students had achieved mastery of grade level phonics skills. Nearly all were dysfluent readers and all but seven spelled below grade level.

Section 3: Decoding Skills and Language Comprehension Differences

Analysis of the decoding skills and language comprehension skills of the comparative groups revealed two differences. Findings about differences in phonological awareness skills and encoding errors are presented next.

Phonological Awareness

To review, content analysis of the available data on phonological awareness for each student ($N = 40$) was conducted. Five students were labeled "strong" in all areas of phonological awareness by clinicians. Thirty-five students (88%) were weak in rhyming or rhyme detection, phoneme segmentation, phoneme isolation, or phoneme blending. This study found that having a phonological awareness deficiency was a similarity between students labeled struggling readers and those labeled readers with or at risk for dyslexia.

Comparative analysis of the phonological awareness levels of each student revealed differences in the phonological awareness deficiencies of students at risk for or with dyslexia and struggling readers. The results of the analysis are displayed in Table 14 and of particular

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significance is the finding that 90% of the students with or at risk for dyslexia had phonological awareness deficiency at the phoneme segmentation level whereas only 15% of the struggling readers did. In contrast, 25% of the struggling readers had no areas of deficiency and the largest percentage, 45%, had weaknesses at the phoneme isolation level.

Table 14

Phonological Awareness Deficiencies

Area of Deficiency	Struggling Readers (<i>N</i> = 20)		Students With or At Risk for Dyslexia (<i>N</i> = 20)	
	<i>n</i>	%	<i>n</i>	%
Rhyming/Rhyme Detection	2	10.0	0	0
Phoneme Segmentation	3	15.0	18	90.0
Phoneme Isolation				
Final Sounds	1	5.0	0	0
Long Vowel Phonemes Only	3	15.0	0	0
Short Vowel Phonemes Only	2	10.0	0	0
Both Long and Short Vowel Phonemes	3	15.0	2	10.0
Phoneme Blending	1	5.0	0	0
No Deficient Areas	5	25.0	0	0

Note: Percentages calculated by comparison group; missing data = 4 files.

This finding is not surprising given dyslexia is understood, in part, to be characterized by difficulties with accurate and/or fluent word level reading that “typically result from a deficit in the phonological component of language” (IDA, 2002). To be sure, all of the areas of deficiency in Table 14 represent deficiencies in the phonological component of language. But phoneme isolation is understood to be a more advanced phonological awareness skill because it requires the student to segment all of the phonemes in the word and then determine where the particular sound in the word. For the 18 students with at risk for or with dyslexia in this study, a deficiency in a more basic level of phonological awareness, phoneme segmentation – the ability to break a

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word into the individual sounds, or phonemes – likely contributes a great deal to their word-level reading difficulties. Recall the brief explanation of reading development in Chapter 2. Weak phonological awareness skills in general, and phoneme segmentation skill in particular, impair a developing reader’s understanding of the alphabetic principle (Liberman & Shankweiler, 1985; Snow et al., 1998), which is the insight that the oral sounds (phonemes) in spoken words are represented by letters (graphemes) in print. The alphabetic principle is a necessary understanding when learning to decode.

Previous studies found every aspect of word-level reading is affected by phonological skills (Ahmed et al., 2012; Halderman et al., 2012). Many children develop phonological awareness skills naturally (Kilpatrick, 2016); those with phonological-core deficits (Stanovich, 1988) do not. For the students with or at risk for dyslexia in this study, deficient phoneme segmentation skills was found to be a weakness in their phonological awareness skills. This finding makes sense, given a deficit in the phonological component of language is part of the definition of dyslexia (IDA, 2002). The *California Common Core State Standards* (California Department of Education, 2013) includes four foundational standards for students grades K-2: phonological awareness is standard 2 in grades kindergarten and 1. It is impossible to know if the 42 students in this study received Tier 1 instruction in phonological awareness. Regardless, increased phonological awareness intervention was warranted for every student in this study. For the students with or at risk for dyslexia, explicit and ongoing phonological awareness instruction to the advanced level would be a mandatory part of their development of word-level reading skills.

However, this study found that phonological awareness screeners were not routinely employed by all clinicians. Instead, intervention targeted phonics instruction without addressing

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the underlying phonological awareness deficits. This is not to say the clinicians at the CLC were unaware of students' phonological awareness needs: indeed, 19 of 20 files contained clinician notes about students' phonological awareness. Using a phonological awareness screener that assesses to the advanced phoneme awareness level for all primary grade readers and any readers reading below grade level in upper elementary would make assessing, targeting, and progress monitoring students' needs more systematic. Interestingly, none of the classroom teachers' responses to the prompt "In your opinion, what specific skills should be the focus of the student's reading and writing literacy development program as they relate to the Common Core Standards initiative?" on the private literacy clinic's teacher questionnaire (Appendix E) included phonological awareness, which is consistent with a study that found teachers have limited knowledge about phonological awareness (Binks-Cantrell et al., 2012). Universal screening of all students with a research-validated phonological awareness screening tool is needed to bring awareness to the importance of phonological awareness.

Encoding

Results from the use of the Levenshtein scores to analyze the distance between the student's spelling and the conventional spelling are the focus of this section. The Levenshtein scores revealed the mean distance between the student's spelling and the conventional spelling was further apart for students with or at risk for dyslexia ($M = 63.00$, $SD = 19.80$, $N = 19$) than for struggling readers ($M = 73.05$, $SD = 15.89$, $N = 19$). Two possible explanations for the differences in the distance between spelling errors between the comparative groups can be made based on previously reported findings.

First, the struggling students in this study were stronger at the phonological awareness level than the students with or at risk for dyslexia. Of the 24 students found to be weak in

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phoneme segmentation, 18 were students with dyslexia. Phoneme segmentation refers to the ability to distinguish the individual sounds in words. The process of encoding involves representing the sounds, or phonemes, one hears with the appropriate graphemes, or letters, that represent the sounds. Impaired phoneme segmentation skills likely impaired 18 students' encoding skills. Second, the struggling students in this study had comparatively higher level decoding skills. Of the fifteen students in grades K-3 needing intensive intervention in reading Consonant-Short Vowel-Consonant (CVC) words, ten were students with or at risk for dyslexia, including three in grade 1, three in grade 2, and one in grade 3, all of whom had completed those grade levels. Eight students with dyslexia in grades 2 and 3 had not yet mastered reading words with consonant blends, consonant diagraphs, r-controlled vowels, and long vowel spellings. Six of the nine struggling readers needing the same instruction were in grade 1; the other two were in grade 2. Weak phoneme segmentation skills combined with weak phonics skills alone could explain the difference in the difference in Levenshtein scores.

Yet throughout the coding process, it appeared the spelling errors of students with or at risk for dyslexia were more irregular than struggling readers' errors. For example, a grade 3 student with dyslexia wrote *themp* for *throat*, *mnth* for *month*, *clard* for *crawl*, and *scoc* for *sock*. Similarly, a grade 2 student with dyslexia wrote *daduc* for *duck*, *pwy* for *play* and *ban* for *brown*. In contrast, a grade 2 struggling reader's errors were *shin* for *chin*, *cowch* for *couch*, *wishis* for *wishes*, and *thered* for *thread*. The struggling reader made spelling errors that matched the sounds in each word. The second syllable in *wishes* sounds like it could be spelled *is*, /ow/ and /ou/ both represent the same sound in *couch*. In contrast, words written by the students with dyslexia omitted sounds (*ban* for *brown* is missing the /r/ and /ow/), inserted sounds (*daduc* for *duck* inserts an extra syllable), or completely misrepresented sounds (*themp* for *throat*).

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A previous study found children with dyslexia lag behind in spelling development (Treiman, 1997) and their use of phonological spelling strategies. A research advisory on dyslexia states, “errors in reading and spelling made by children classified as dyslexic are not reliably different from those of younger children who are not classified as dyslexic,” (International Literacy Association, 2016, p. 3) a statement perhaps referring to a study conducted by Bruck (1993) that found the spelling strategies used by college students with childhood diagnoses of dyslexia were more similar to those made by reading-level matched controls than age-matched controls. Curiosity about the differences in the types of errors prompted the Levenshtein score analysis in this study.

To explore the spelling errors, the largest concentration of spellers at the same spelling level in this study was used. The reciprocal Levenshtein scores for thirteen students who spelled at the first grade level, seven with dyslexia and six struggling readers (none scored 100%), were entered into an SPSS file. Three were on grade level in grade 1, eight were a year below grade level in grade 2, and two were spelling two years behind grade level in grade 3. The mean score for struggling readers ($M = 70.20$, $SD = 10.23$, $N = 6$) was higher than the mean scores for the students with dyslexia ($M = 53.50$, $SD = 12.82$, $N = 7$). Granted, the sample size and use of various spelling assessments limits the validity of the results, but the results do suggest the spelling errors of dyslexic readers in this study at the same spelling level are further in distance from the conventional spelling than are the errors of struggling readers. The phonological-core deficits that make the phoneme-grapheme connection difficult and that impair orthographic mapping skills in children with dyslexia are the likely causes of the increased distance. Further research studies would be required to validate these claims.

Summary

This study found two differences in the comparative groups – encoding levels and phoneme segmentation levels – that share a common thread, the phonological component of language. Since a deficit in the phonological component of language is understood to be part of the definition of dyslexia, it makes sense that what distinguished students with or at risk for dyslexia from struggling readers was their inability to segment words into phonemes and, in turn, assign the correct grapheme to the phonemes to encode words.

Section 4: Intervention Decisions

The purpose of research question 4 was to examine the relationship between the intervention students received and how the intervention decisions were related to the students' decoding and language comprehension skills. The need for the question stemmed from the fact that the definitions of dyslexia include statements regarding classroom instruction. The word-level reading difficulties that characterize dyslexia are “unexpected in relation to other cognitive abilities and the provision of effective classroom instruction” (IDA, 2002) and despite adequate instructional opportunities (Fletcher et al., 2007; Hulme & Snowling, 2009; Kilpatrick, 2015; Velluntino et al., 2004). The intent of research question 4 was to analyze the alignment of the interventions to students' assessed needs and to compare the groups' responses to the intervention they received.

The hope was to find a match between student need and intervention provided, since assessment data about a student's reading characteristics should form the basis of an intervention plan (Kilpatrick, 2015). The expectation was that students with or at risk for dyslexia would be found to be far slower to respond to intervention, since what consistently distinguishes individuals with dyslexia from other children in their slow response to instruction (Fletcher et al.,

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2007; Hulme & Snowling, 2009; IDA, 2002; Velluntino & Fletcher, 2008; Velluntino et al., 2004).

All of the clinical files contained assessment data. All contained documents with instructional areas of need to focus on during clinical sessions. In addition, many of the CLC files contained weekly instructional lesson plans that contained plans to address areas of word recognition/vocabulary, comprehension/listening comprehension, oral language development, writing, spelling, fluency/read aloud, and content reading/study skills. Files from both clinics also included documentation of students' responses to instruction in the form of post-assessments, clinician notes, student work samples, communication with parents, and communication with classroom teachers. During the design of the study, it appeared that the clinical files contained the necessary documents to answer research question 4: *What interventions do students receive and how do these intervention decisions relate to the students' decoding and language comprehension skills?*

However, during the coding process it became apparent that the nuanced instructional decisions that were likely made in the moment of interacting with the students – and that spoke to how intervention decisions were made – were not noted in the files; this became obvious when the researcher repeatedly coded documents with “why?” and “student’s response?” and longed for the option to conduct follow-up interviews with clinicians. As a result, question 4 could not be answered in this study.

Summary of Findings

The findings related to the three research questions answered in this study suggest clear similarities in the patterns in the reading behaviors of struggling readers and readers with and at risk for dyslexia. These patterns were evident in both factors, linguistic comprehension and word

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recognition skills, that affect reading comprehension. There were also identifiable differences that distinguished dyslexic readers from struggling readers in this study. The exploration of meaning of the labels parents and educators assign readers yielded layers of complexity and urgency to the term struggling reader. There were also questions not fully explained by the document analysis.

All of the parents sought reading intervention for their child because of their child's struggle to learn word-level reading skills. Being able to comprehend print is the goal of learning to read and this study found that the inability to decode print of the page was the barrier to reading advancement for all of the participants. Thematic analysis of parents' use of the term struggling reader revealed a poignant urgency to their concerns that the struggle was causing their children – students in their earliest years of formal schooling – to fall behind academically, negatively affecting both their desire to learn to read, and their self-image causing mental health issues in some. Teacher comments corroborated word-level reading difficulties were the reason students needed clinical reading intervention.

Analysis of assessment data related to reading comprehension found the mean reading comprehension level for the students in this study was below grade level to far below grade level expectations. Simply, all of the students were struggling with learning to read. Analysis of the linguistic comprehension factor yielded the only on grade level finding for the group as a whole and necessitated a closer look at the word recognition/decoding factor.

In every analyzed word recognition skill area – sight word recognition level, phonics skill level, phonological awareness level, and encoding levels – both groups scored below grade level, with the group of students with or at risk for dyslexia scoring lower than the struggling reader group. Motivating this study was the desire to find markers that could lead to distinguish a

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dyslexic reader from a struggling reader. While no definitive marker was identified, there were definite differences between the groups in the areas of phonological awareness and encoding.

The analysis of phonological awareness data revealed none of the students with or at risk for dyslexia were proficient at phoneme segmentation, a skill necessary for understanding the alphabetic principle, which in turn supports the development of robust decoding skills. This finding is not surprising, given dyslexia typically results from a deficit in the phonological component of language. Given the importance of phonological awareness to the development of reading skills, it was surprising to find no mention of phonological awareness in teachers' comments and no phonological awareness screening data in half of the files.

Curiosity about the type of spelling errors made by the dyslexic readers led to an exploration of the distance from the conventional spelling of both groups' spelling errors. Among students at the same spelling level, the errors of the dyslexic students were further away from conventional spelling than were the spelling errors of struggling readers. Though the sample size and lack of standardized spelling assessments threaten the validity of the findings, this finding points to an area of further research into how the Levenshtein score could be used by classroom teachers to analyze emergent spelling to help identify students at risk for dyslexia.

Chapter 5 will offer a further analysis of the study's findings. In addition, recommendations and limitations will be included.

Chapter 5

Discussion

The effects of failing to learn to read begin to exact a personal and educational cost to young students in the earliest years of schooling and can carry lifetime ramifications. Reading is not an innate process; rather, learning to read occurs only as a result of re-appropriating existing structures within the brain (Dehaene & Cohen, 2011), a process that requires effective teaching. Educators cannot control whether young children engage in sufficient exposure to meaningful language experiences prior to beginning formal schooling, such as being read to and talked with (Davis et al., 2007), to be optimally ready to learn to read. Educators can control the educational practices we employ as we teach children to read. We can provide students with rich curricular experiences that build their content knowledge, increase their oral language development and vocabulary skills, spark their curiosity about the world, and empower and enable them to achieve the goals they set for themselves. We can also provide students with reading instruction that is informed by decades of research (Hoover & Tunmer, 2018) confirming the multiplicative, not additive, relationship of word-level reading skills and language comprehension, both factors vital to the development of strong reading comprehension.

Debate about how to teach reading continues to dominate education policy discussions about best instructional practices, teacher preparation programs, curriculum adoption decisions, and universal screening practices. In fact, as this study was being conducted, the latest iteration of the reading wars took center stage on a national level (Hanford, 2019, August 22) reaching a broader audience than ever before through social media. The debate continues to focus on the role of phonics instruction, the word recognition/decoding factor of the Simple View of Reading (SVR).

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There was no debate from parents in this study, representing 30 elementary schools of all types in nine school districts: their child's inability to decode the words on the page was an obstacle to learning to read. There was no debate about what their child needed: every student in the study needed additional word-level reading intervention to learn how to decode. The students in this study are reminders that it would behoove us to critically examine our early literacy screening procedures so that we can move from a wait-to-fail model to a preventative model. Recall that research has suggested approximately 40%-60% of people with a first degree relative with dyslexia will struggle with reading themselves (Volger et al., 1985). Recall "family history is one of the strongest risk factors for developing dyslexia" (Ozernov-Palchik & Gaab, 2016, p. 160). Indeed, in this study, 57% of the students with or at risk for dyslexia ($N = 12$) and 13% of the struggling readers ($N = 3$) came from a family with a history of dyslexia. The advancements in understanding the brain characteristics of individuals with dyslexia which can be observed as early as infancy and preschool, especially in children with a genetic risk for dyslexia (Leppanen et al., 2010), and the advancements in understanding dyslexia to be a result of a deficit in the phonological component of language have led to the development of dyslexia screeners that can be used before students fail to respond to instruction and intervention.

At a minimum, a dyslexia screener should assess a student's phonological awareness, phonological short-term memory (the immediate memory span for auditory-verbal information), rapid automatized naming (the ability to quickly name aloud a series of familiar items on a page), letter/sound knowledge, vocabulary, oral listening comprehension, and family history of dyslexia (Gaab, 2017). Children identified at risk for dyslexia are not the only beneficiaries of implementing a dyslexia screener. Rather, the data gathered from the use of a dyslexia screener with all incoming kindergarten and grade 1 students (and older students failing to learn to read)

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can be used to help early literacy educators identify students who may struggle to learn to read and critically examine the need for and plan effective phonological awareness, phonemic awareness, phonics, vocabulary, and listening comprehension instruction for all early readers.

The results of this study seek to provide educators in general, and classroom teachers in particular, with the rationale for why early screening is vital and why it is crucial we use assessment data to identify the source or sources of our youngest readers' struggle. Without alignment to assessed – or, in the case of students at risk for dyslexia, anticipated – instructional needs, reading instruction will continue to be ineffective for students at risk for reading failure. Shifting the needle away from debates about reading instruction and toward professional development for primary grade general education teachers about the essential role of phonological awareness, phonemic awareness, and phonics skills in learning to read, is another goal of this study. By doing so, the importance of word-level reading instruction in Tier 1 (whole class) instruction should be given increased attention.

This study sought to identify similarities and differences between struggling readers and readers with and at risk for dyslexia, to understand labels used to describe them, and to identify markers general education classroom teachers use to identify children with or at risk for dyslexia. This chapter presents the findings in relation to the research questions and the literature review.

Research Question 1: Labels Used to Describe Students

When students perform outside the norm, such as when academic differences are discovered during activities such as universal screening, a label is typically applied. Being labeled “at risk for reading failure,” a negative label, is often required for a student to receive the necessary intervention to learn to read, a positive result, but “labels are never harmless” (Dudley-Marling, 2011, p. 2). The label “struggling reader” is not harmless. To Dudley-Marling, and to

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this researcher, the “struggling reader metaphor gives no indication that the activity of learning to read differs for (struggling) readers, reinforcing the sense that it is individual readers who bear the responsibility for the term” (Dudley-Marling, 2011, p. 3). Thus, the impetus to explore the labels used to describe readers in this study stemmed from Dudley-Marling’s (2011) argument that researchers have an ethical responsibility to interrogate the terms that affect the lives of the students who educators label.

Both the community-based literacy clinic (CLC) and the private literacy clinic (PLC) sought information about why parents were seeking clinical intervention for their child using multiple-choice questions aligned to the two factors affecting reading comprehension according to the SVR. Thematic and content analysis of parent responses revealed the word recognition skills/decoding factor of the SVR as the primary motivation and the linguistic comprehension factor as the secondary motivation. Teacher comments corroborated the need for clinical intervention for word-level reading challenges.

Our youngest children begin school with the expectation they will learn to read if they work hard in school. Parents in this study described children who were working hard to learn to read, to no avail, and failing to do so came at an academic and emotional cost. Parent reporting could have potentially skewed the data to ensure their child’s reading problem warranted reading intervention. However, the extent to which there was “parental exaggeration” was clearly mitigated by the fact that their concerns were indeed validated through the assessments found in the clinical intervention files. The students’ frustrations with feeling as if they were failing, unable to keep up with their peers academically, were captured in parent comments that communicated urgency about their child’s reading development, their overall academic performance, and, most poignantly, the effect that struggling to learn to read was having on their

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child's self-confidence and overall mental health. This finding is consistent with the literature about the negative consequences of the inability to read accurately and fluently (Casey et al., 1992; Mugnaini et al., 2009).

Parent applications indicated one-third of the students in this study had a family history of dyslexia. Educators can capitalize on the knowledge parents have about their child's areas of struggle to help identify children who may be at risk for a reading disability. Given the heritability of dyslexia (Ozernov-Palchik & Gaab, 2016; Volger et al., 1985), the forms parents fill out when children enroll in kindergarten should include the question, "Did anyone in your child's family have difficulty learning to read?" (Petscher et al., 2019). Checklists similar to those provided by the CLC on its parent application (Appendix C) and the PLC on its parent questionnaire (Appendix D) can provide a starting point for educators interested in adding language to their parent-intake forms.

Information gathered from simple checklists can then be used to help educators move from the more general label of struggling reader to a specific label such as "struggling with learning the letters of the alphabet" or "struggling with sounding out words," specificity that informs the type of early intervention that may be beneficial for the child. In addition, given "the activity of learning to read differs for (struggling) readers," (Dudley-Marling, 2011, p. 2), the intervention should not simply repeat the instructional strategies already tried, but should incorporate instructional strategies that provide "intensive phonemic awareness training, intensive phonic decoding training, and substantial opportunity for reading connected text" (Kilpatrick, 2015, p. 113).

Research Question 2: Decoding Skills and Language Comprehension Similarities

The use of document analysis in this study was inspired by a study conducted by Snowling (2013) that concluded there is no need to implement costly universal screening procedures; instead, there are already many data in schools that can be used by teachers to identify children who are failing to respond to mainstream teaching and that those identified should include students with or at risk for dyslexia.

The clinical intervention files from both the clinics contained sufficient documents to answer research question 2 about the students' levels in reading comprehension, and the contributing factors of language comprehension and word recognition/decoding skills, using a collection of assessment tools typical of those used by classroom teachers. Nearly all (95%) of the students in this study were below grade level in reading comprehension despite being, on average, at grade level in language comprehension. Previous research indicates that when the language comprehension factor is solid, reading comprehension issues are likely a result of weak word-level reading skills (Gough & Tunmer, 1986; Hoover & Gough, 1990; Kilpatrick, 2015). For 11 students with below grade level language comprehension skills, subtle language issues also likely contributed to below grade level reading comprehension levels (Kilpatrick, 2015).

Indeed, analysis of sight word recognition skills found nearly all students (95%) to be below grade level. Studies have shown a student's ability to decode words in isolation may be different from the student's ability to identify words in context (Adroin, Christ, Morena, Cormier & Klingbeil, 2013; Nicholson, 1991) and that diagnostic decisions about a student's reading level should not be made on the basis of word-list information (Leslie & Caldwell, 2016). The triangulation of the reading comprehension data, which required students to identify words in context, the sight word recognition data, and the below grade level phonological awareness and

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phonics skills data, confirmed the similarity of the comparative groups: all were struggling to acquire basic reading skills. Though the clinical intervention files did not contain sufficient information to evaluate students' rate of reading, clinical notes described both groups' oral reading as similarly slow, labored, and indicative of having failed to achieve automaticity.

None of the students in kindergarten or in grade 1 achieved grade level reading comprehension expectations. Eleven of the grade 2 and grade 3 students were still reading at grade 1 level, and seven were still reading at kindergarten or pre-primer level. For the kindergarten and grade 1 students in this study, the gaps between grade level expectations and students' reading levels that formed during kindergarten and grade 1, at the beginning of their school experience, were likely to widen considerably as they approached grade 4 (Stanovich, 1986). Students who struggle to read in grade 1 have a 90% likelihood of remaining a poor reader in grade 4 (Juel, 1998) without considerable intervention. As stated earlier, interventions are most effective when administered in kindergarten (Cavanaugh et al., 2004; Wanzek & Vaughn, 2007) and first grade (Hines, 2009; Jenkins et al., 2004; Pullen et al., 2005). For half of the students in this study, the window of optimal intervention had already passed.

Clinical intervention files also contained spelling data. Only seven students (18%) – all struggling readers – spelled on grade level. No students with or at risk for dyslexia spelled on grade level. One contributing factor to their weakness as spellers could be their weak phonological awareness skills. Another factor could be lack of opportunity for sufficient encoding practice. There was evidence in the clinical files that students at the CLC engaged in word sorts and word building activities, and students at the PLC were asked to engage in dictation and revision. But there was insufficient documentation in the clinical files to determine the frequency of encoding practice. Phonics expert Blevins (2016) found one of the aspects of

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phonics instruction missing in classrooms is ample opportunity for students to transfer their phonics skills to writing through dictation and revision. Therefore, increasing the frequency of encoding practice in clinical and classroom settings through dictation and revision is recommended strategy to help students instantiate the phoneme-grapheme connection and phonics patterns.

The lack of standardization of the assessment tools used by clinicians provided this researcher with an opportunity to experience the complexity classroom teachers must manage when receiving students' cumulative folders or permanent student records from a previous teacher or school. While it was possible to use data in schools to identify children who were failing to respond to mainstream teaching (Snowling, 2013), it would be favorable to implement a dyslexia screening tool such as the Early Literacy Screener (Gaab, 2018) across a district so that teachers could analyze data together in professional learning communities, make decisions about first best instruction and necessary levels of intervention, and work with students to achieve common progress monitoring benchmarks.

Research Question 3: Decoding Skills and Language Comprehension Differences

This study fell short of identifying markers that could definitively name differences between students who struggle to read and students with or at risk for dyslexia. Nevertheless, there were two findings about how the comparative groups differed that warrant further inspection. The comparative groups in this study differed in two areas: phonological awareness skills and encoding. Only five students in the study were labeled "strong" in all areas of phonological awareness. Nearly 90% of the students were weak in aspects of rhyming or rhyme detection, phoneme segmentation, phoneme isolation, or phoneme blending. Weak phonological awareness was likely a contributor for all students' with below grade level decoding skills

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because “there is simply no aspect of word-level reading that is unaffected by phonological skills,” (Kilpatrick, 2015, p. 114).

This study found a difference in the level of phonological awareness at which each group had a deficit. Comparative analysis revealed that 90% of the students with or at risk for dyslexia had phonological awareness deficiency at the phoneme segmentation level whereas only 15% of the struggling readers did. As stated previously, this finding was not surprising given dyslexia is understood, in part, to be characterized by difficulties with accurate and/or fluent word level reading that “typically result from a deficit in the phonological component of language” (IDA, 2002).

What was surprising was the lack of a phonological screener and lack of evidence of phonological awareness training in the clinical intervention files. It bears repeating that phonological awareness is critical for developing phonemic awareness and learning to read in any alphabetic writing system (Ehri, 2004; Troia, 2004). Phonological awareness training must be part of reading instruction, but some teachers have misconceptions about the role phonological awareness plays in reading disabilities (Washburn et al., 2017).

That dyslexia advocates are pushing for state level legislation to increase professional development about dyslexia for teachers (Decoding Dyslexia, n.d.) has the potential to benefit all students who struggle to learn to read, because central to that professional development is a foundational understanding of the essential role phonological awareness plays in reading development. In addition, clinical interventionists and primary classroom teachers would benefit from professional development focused on the importance of daily phonological training in kindergarten (National Institute of Child Health and Human Development, 2000) and beyond for children who are struggling to learn how to read (Kilpatrick, 2015, 2016).

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The group of students with or at risk for dyslexia made encoding errors that were further away from the conventional spelling than were the errors of the struggling students. This was determined using a letter distance score for each spelling that was calculated (Levenshtein, 1965) to determine the distance between the student's spelling and the conventional spelling. The mean score for struggling readers ($M = 70.20$, $SD = 10.23$, $N = 6$) was higher than the mean scores for the students with dyslexia ($M = 53.50$, $SD = 12.82$, $N = 7$). The sample size and use of various spelling assessments limits the validity of the results, but the results do suggest the spelling errors of dyslexic readers likely reflected their deficiencies at the phoneme segmentation level. After all, a student who is unable to break a word into its constituent sounds will likely struggle to assign a representative letter or letters to each sound. Coupling phonological awareness data with encoding assessments scored with the Levenshtein score is an area that warrants further investigation.

Research Question 4: Intervention Decisions

Research question 4, *What interventions do students receive and how do these intervention decisions relate to the students' decoding and language comprehension skills?*, could not be answered in this study. The intent of the question was to analyze the alignment of the interventions to students' assessed needs and to compare the groups' responses to the intervention they received. The intent was also to better understand the nuanced instructional decisions that were likely made in the moment of interacting with the students. Clinical intervention files contained information about the interventions students received, but did not contain sufficient information to answer how intervention decisions were made. A future study could be designed to include the opportunity to interview clinicians about their decision-making processes using a semi-structured interview protocol. It would also be important to conduct a

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follow-up interview with the director of the community-based literacy to understand the constraints and leeway granted to clinicians who are expected to make decisions under university supervision.

Recommendations for Future Research

In order to understand the similarities and differences among struggling readers and readers with or at risk for dyslexia, future research on the combination of the students' phoneme segmentation deficiencies coupled with their encoding errors is important. The use of the Levenshtein score to calculate the distance of the student's spelling error from the correct spelling will be interesting to study further, especially in light of the recent study that found early spelling is a unique predictor of later literacy performance (Treiman et al., 2019). In addition, future research should focus on how the use of dyslexia screeners affect the kindergarten to grade 3 academic trajectories of students at risk for reading disabilities. Furthermore, research that examines the effect of increased phonological awareness training in Tier 1 instruction as well as Tier 2 and Tier 3 for children at risk for dyslexia is needed. Moreover, a future study could reanalyze clinical intervention files from a gendered or ethnic perspective to see how gender and/or ethnicity affects how a student is labeled. Finally, as California's dyslexia guidelines continue to influence dyslexia policies, it may become important conduct future research to determine whether or not interventionists' and clinicians' decisions begin to reflect the Authoritative Discourse (Bakhtin, 1981) found in the study of Texas interventionists conducted by Worthy et al. (2018).

Limitations

As with all research, this study was subject to threats to credibility and validity. Every effort was made to mitigate these limitations. As an educator with over two decades of

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experience as a literacy teacher, parent of a child with dyslexia, and dyslexia advocate, it was important this researcher adopt a stance of “empathic neutrality” (Patton, 2002, p. 50) while analyzing documents to avoid confirmation bias. This section details the limitations to this study and efforts to compensate for any bias.

Document Analysis as a Stand-Alone Method

The limitations inherent in document analysis included insufficient detail and biased selectivity (Bowen, 2009). The analyzed documents were insufficient to thoroughly answer the research questions, especially question 4, because the available documents aligned with the agendas of the clinicians collecting data, suggesting “biased selectivity” (Yin, 1994, p. 80), and were not produced for this research study. Also, Atkinson and Coffey (2004) cautioned researchers “we cannot treat records – however ‘official’ – as firm evidence of what they report” (p. 58). The use of document analysis rather than interviews and surveys represents a trade-off between the desire for the broad coverage (Yin, 1994) of how educators document the process of a child struggling to learn to read and a more controlled research method. Bowen (2009) viewed biased selectivity and the inability to treat documents as official records as “potential flaws rather than disadvantages” (p. 32) that do not outweigh the advantages of document analysis.

Sample

Threats to external validity exist because purposive sampling was used to create the instrumental case, resulting in findings that are not statistically representative of the greater population at hand. Despite efforts to determine a representative sample of struggling readers and readers with dyslexia and without other disabilities that could complicate understanding the students as readers, data from the document analysis should be interpreted with caution. Another threat to validity exists because of selection bias, in that the sample represents only children of

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families who knew that they should seek out afterschool reading intervention, were able to locate an afterschool reading intervention provider, could afford the cost of afterschool reading intervention (the cost of sessions, transportation, and time), and could support their children in completing intervention homework and practice. A third threat to validity exists because of how the students were labeled dyslexic or struggling. Fifteen students had a clinical diagnosis of dyslexia. Six students were labeled dyslexic by IEP teams and included in the dyslexia group. The files of seven other students who qualified for special education services did not include evidence that their Specific Learning Disabilities were labeled as dyslexia by the education evaluation teams: as a result, they were included in the struggling reader group in this study. However, it is possible students included in the struggling reader group were actually readers with or at risk for dyslexia.

Also, differences in the means between struggling readers and readers with or at risk for dyslexia may be underestimated because of skewed distribution in grades 1 and 2. In addition, the sample size on some of the variables, including the classroom teachers' responses and the grade level analysis of word-level reading skills, was small. A future study might increase the sample size to confirm the findings. Finally, it should also be noted that all students from this study were students whose families sought intervention from one of two reading clinics, and both clinics charged a fee and had limited flexibility in the number of students who could be served and limited appointment hours, which may limit generalizability to students who cannot afford to access clinical intervention.

Instrumentation

A significant limitation of this study was the assessments analyzed to answer research questions 2 and 3: none were standardized or norm-referenced, which poses a threat to validity.

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Instead, the assessments were typical of the types used by classroom teachers and clinicians to gather data for formative assessment and progress monitoring purposes. Despite efforts to align the results of the assessments to grade level expectations and to capture the breadth of each factor of the SVR, data from the assessments should be interpreted with caution.

Despite the limitations, this study is valuable because it identified similarities and differences in struggling readers and readers with or at risk for dyslexia using assessment tools available to classroom teachers. It identified the need for early screening, early intervention, and professional development for educators about the role of phonological awareness in learning to read and about dyslexia that can benefit all kindergarten to grade 3 students struggling to learn to read.

Recommendations

This study represents a qualitative exploration of a complex issue – whether or not there are markers that distinguish readers with or at risk of dyslexia from readers who struggle. Labeling a student has ramifications, but failing to identify children early in their schooling because of debate about whether dyslexia exists denies children the intensity and type of phonological awareness, phonemic awareness, and decoding instruction they require to gain access to print.

One aspect of the dyslexia debate stems from whether a reading disability is just at one end of the distribution of reading skills or if some cases of disability, including dyslexia, represent a distinct disorder (Pennington et al., 1992). The group of students with or at risk for dyslexia in this study were at a further end of the distribution of reading skills when compared with the struggling reader group. Indeed, their deficiencies in phonological awareness and

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encoding reflected the hallmark of dyslexia, which is a deficit in the phonological component of language.

Another aspect of the dyslexia debate asserts distinguishing dyslexic children from other struggling readers does more harm than good (Elliott & Grigorenko, 2014). All of the students in this study were struggling to read because of word-level reading difficulties. As the SVR identifies, comprehension is the primary purpose of reading – a purpose that cannot be achieved without language comprehension skills *and* decoding skills. All of the students in this study were experiencing the academic – and some the emotional – ramifications of failing to learn to read words at the pace of their peers. Dyslexia advocates argue that shining a light on the needs of children with dyslexia will improve education outcomes for all students who struggle with word-level reading skills (Decoding Dyslexia, n.d.). Struggling readers and readers with or at risk for dyslexia, like the students in this study, would benefit from ensuring universal screening measures are in place in every state and that general education classroom teachers are knowledgeable about the foundational skills required to learn to read, especially the role of phonological awareness in developing word-level reading skills.

A third aspect of the dyslexia debate is that the existing protections outlined in the Individuals with Disabilities in Education Act (IDEA, 2004) are sufficient for students with specific learning disabilities in reading, which includes students with dyslexia. Half of the students in this study ($N = 22$) qualified for an Individualized Education Plan and were receiving Specialized Academic Instruction. Despite protections outlined in IDEA (2004), only two of the students were reading at grade level. Existing protections for students in this study were not enough to ensure they learned how to read.

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The National Reading Panel (2000) found a teacher's knowledge and expertise is a critical factor in reading achievement. Subsequent studies have revealed teachers have misconceptions about dyslexia (Berninger et al., 2008; Moats, 2009; Washburn et al., 2011a, 2011b; Washburn et al., 2017). This study found a lack of phonological awareness screener data and a lack of evidence of phonological awareness training in the clinical intervention files. In addition, classroom teacher comments included the need for phonics instruction but did not contain information about students' phonological awareness. The struggling readers and readers with or at risk for dyslexia in this study spent the majority of the school day in general education classrooms. Classroom teachers, resource room teachers, and reading clinicians must be taught the importance of phonological awareness in reading development. Thus, the recommendations from this researcher include:

- Provide professional development for all kindergarten to grade 3 elementary educators on reading and the brain (Frey & Fisher, 2010).
- Provide professional development for all kindergarten to grade 3 elementary educators, resource teachers, and clinicians on the role phonological awareness plays in reading development, since learning to read does not begin with phonics.
- Provide professional development for all kindergarten to grade 3 elementary educators on the multiplicative relationship between decoding and language comprehension in reading comprehension, also known as the Simple View of Reading, coupled with the strands of Scarborough's *Reading Rope* (2001).
- Insert a question about the family's history with dyslexia or struggling to learn to read into questionnaires distributed during kindergarten registration and open house.

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- Implement a district-wide universal screener (see *California Dyslexia Guidelines*, 2017, pp. 50-54) at the start of kindergarten and re-evaluate in grade 1. Engage in professional learning community sessions to analyze resulting data, plan appropriate tiers of support, and implement progress monitoring tools and timelines.
- Utilize a phonological screener during classroom instruction such as the *Phonological Awareness Screening Test* (Kilpatrick, 2018) in kindergarten to grade 3 that assesses beyond phoneme segmentation and blending (typically achieved in grade 1) to advanced phonological awareness (typically achieved in grades 2 and 3).
- Provide professional development to general education teachers in kindergarten to grade 3 on how to provide appropriate instruction in phonological awareness, phonemic awareness, decoding, and encoding.
- Provide professional development to general education teachers on how to identify signs a student is at risk for dyslexia using a dyslexia checklist (see *Oklahoma Dyslexia Handbook*, 2019, pp. 41-42).

Conclusion

Labeling a child who performs outside the norm academically as at risk for reading failure carries risks, but so too does denying the source of the child's struggle. Imagine being a child for whom "the activity of learning to read differs" (Dudley-Marling, 2011, p. 2), a child who has felt the anguish of failing to learn how to decode words like her kindergarten peers, who struggles with anxiety and feelings of shame because she is falling further behind each year. Imagine being told to try harder to learn to read the way the teacher is teaching, rather than the way her brain – with its neurological deficit in the phonological area – learns best. Imagine finally having a label to explain her struggle to learn to read, only to be told by some educators

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that dyslexia does not exist. The inspiration for this study stemmed from frustration that the term dyslexia, a term that helps explain the source of dyslexic students' struggle, is fraught with debate.

This study endeavored to tease out the language and labels used to describe struggling students, to use readily available data in clinical intervention files that contribute to educators' understanding of the similarities and differences between struggling readers and readers with or at risk for dyslexia. While this study did not yield definitive markers, it contributes to educators' understanding of the word-level reading difficulties that struggling readers and readers with or at risk for dyslexia face, and the ramifications of failing to develop the decoding factor required, along with language comprehension, to achieve reading comprehension.

While educators continue to debate the role of phonics and decoding in reading instruction, cutoff points for intervention eligibility, and whether dyslexia is an etiologically distinct disorder, children continue to fail to learn to read. This study found that word-level reading difficulties were the reason students could not comprehend at grade level, read words in isolation at grade level, or spell at grade level. The combination of the students' phoneme segmentation deficiencies coupled with their encoding errors offers an area of future research. May the urgency in the parents' use of the term struggling reader in this study compel us to set the debates aside, so that teachers can learn how to instruct those children with word-level reading difficulties effectively, so that they may thrive as independent readers.

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Appendix A

Documents Analyzed for the Study		
Purpose	CLC	PLC
Application/Intake	Online Application Form	Initial Phone Call Notes Parent & Teacher Questionnaires
Reading Comprehension	<i>Benchmark Assessment System</i> (BAS; Fountas & Pinnell, 2016) <i>Developmental Reading Assessment 2</i> (DRA; Beaver, 2006) <i>Qualitative Reading Inventory 6</i> (QRI; Leslie & Caldwell, 2016)	<i>Diagnostic Reading Inventory</i> (DRI; Scott & McCleary, 1993)
Language Comprehension	DRA (Beaver, 2006) QRI (Leslie & Caldwell, 2016) <i>Scholastic Success with Reading Comprehension</i> (Wolfe & Hendron, 2002)	<i>Critchlow Verbal Language Scale</i> (CORE, 1999) DRI (Scott & McCleary, 1993) <i>Peabody Picture Vocabulary Test</i> (Dunn & Dunn, 2018)
Word Recognition Skills ¹	<i>Basic Phonics Skills Test 3</i> (Shefelbine, 2006) CPS (Consortium on Reading Excellence, 1999, 2008) First Hundred Words (Fry, 2000) High Frequency Word List (Pinnell & Fountas, 2003) QRI Word Lists (Leslie & Caldwell, 2016) BAS (Fountas & Pinnell, 2016) <i>Three-Minute Assessments</i> (Rasinski & Padak, 2005)	<i>CORE Phonics Surveys</i> (CPS; Consortium on Reading Excellence, 1999) DRI (Scott & McCleary, 1993) <i>Phonological Awareness Screening Test</i> (Adams, Foorman, Lundberg, & Beeler, 1998) <i>San Diego Quick Assessment</i> (La Pray, 1969)
Spelling and Encoding	<i>Primary & Elementary Spelling Inventories</i> (Bear, Invernizzi, & Johnston, 2016)	<i>Dictated Spelling</i> (Jordan, 2000)

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Diagnostic Spelling Test A
(Scott & McCleary, 1993, p.
140)

*Representing Phonemes With
Letters* (Consortium on
Reading Excellence, 1998)

Clinician Notes	Lesson Plans	Treatment Plan
	Supervisor Observation Notes	Progress Reports
	Student Work Samples	Student Work Samples
	Progress Reports	Diagnostic Report

Note: CLC = Community-Based Literacy Clinic, PLC = Private Literacy Clinic; ¹includes assessments of sight word recognition, phonological awareness skills, phonics skills, and fluency.

Appendix B

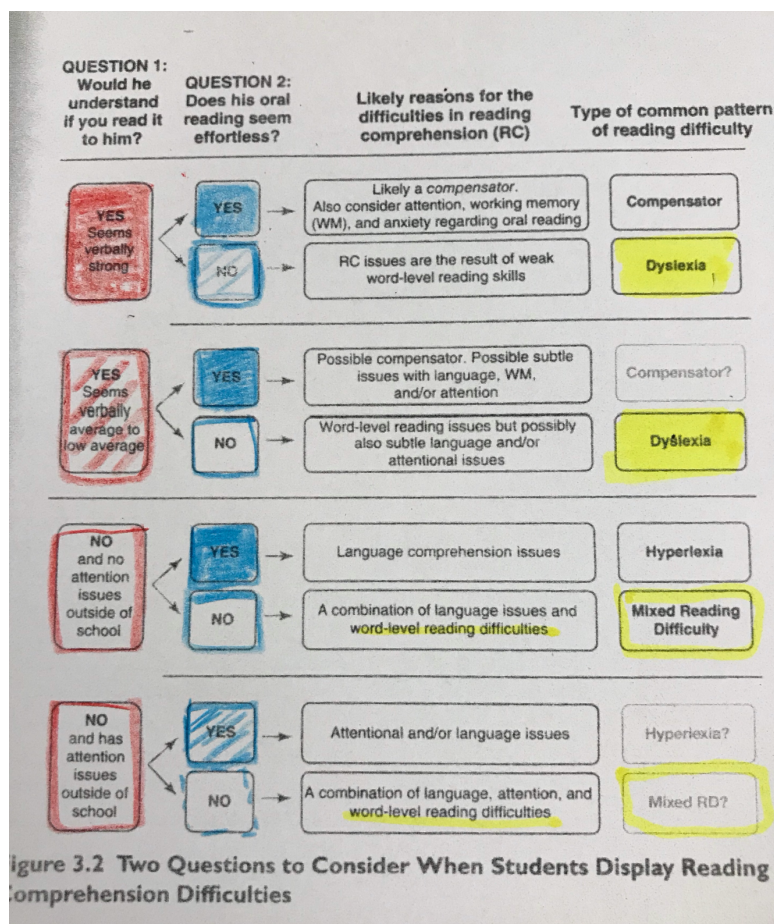
Instrument for Deductive Analysis of Intervention File
(Kilpatrick, 2015, p. 53)

Question #1: Would he understand it if you **read it to him**?

- Yes, verbally strong
- Yes, but verbally average to low. Subtle language problems can impact student reading comprehension (Hulme & Snowling, 2011).
- No, with no inattentiveness
- No, and inattentiveness may be causing difficulties with listening

Question #2: Does his **oral reading** seem effortless?

- “Typically developing students can often read words 3x faster than students with reading disabilities, regardless if they are reading from a list or reading in context (Jenkins et al., 2003)



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Appendix C

Community-Based Literacy Clinic Application

Check difficulties student has had learning to read and/or write (check all that apply):

- Difficulty remembering words already introduced on sight (sight words)
- Difficulty with letter sounds (phonics)
- Difficulty reading with fluency, or reading smoothly
- Difficulty understanding what is read (comprehension)
- Difficulty with spelling
- Difficulty writing sentences
- Difficulty organizing ideas in written form

Please explain why you are seeking literacy (reading and writing) help for this student.

Does student have an Individualized Education Plan (IEP)?

- Yes
- Evaluation is in progress
- No
- I'm not sure

If student has an IEP, please briefly describe his/her/their needs.

What types of extra assistance has the school been able to provide?

Has the student ever had psychological assessment (intelligence or mental health evaluation)?

- Yes
- No
- If "yes" above, please describe:

Does the student have any diagnosed vision problems?

- Yes
- No

Does the student have any diagnosed hearing problems?

- Yes
- No

How would you describe the student's early language development? At approximately what age did the student begin to say words, 2-3 word phrases, sentences?

Primary language spoken at home:

Primary language used by this student for school work:

If there is any other information about the student or his/her/their family that would be helpful to know, please state so in the space below.

Appendix D

Private Literacy Clinic Application

How would you describe your child's experiences in school?

Has your child been retained in school? ___ Yes ___ No

If yes, in which grade(s)? _____

Is your child currently taking any medication(s)? ___ Yes ___ No

If yes, please name the medication(s), the dose(s), and the reason(s):

Please put a check next to the words that describe your child's learning history.

- ___ late talking, compared with other children
- ___ pronunciation problems
- ___ slow vocabulary growth and frequent inability to find the right word
- ___ difficulty rhyming words
- ___ trouble learning numbers, the alphabet, days of the week
- ___ extreme restlessness and easy distraction
- ___ trouble interacting with peers
- ___ poor ability to follow directions or routines
- ___ slow learning of the connection between letters and sounds
- ___ consistent reading and spelling errors, including letter reversals (b/d, for example),
- ___ inversions (m/w), transpositions (left/felt), and substitutions (house/home)
- ___ slow learning of new words, with heavy reliance on memorization
- ___ impulsiveness, lack of planning
- ___ unstable pencil grip
- ___ poor coordination, unawareness of physical surroundings, accident prone

Does your child wear glasses? Please circle: Y N For what purpose? _____

Has your child worn tubes in ears? Y N At what age were they inserted? _____

For how long were they worn? _____

Please put a check next to the words that describe your child's reading ability.

- | | |
|--|---|
| ___ knows almost all letters of the alphabet | ___ avoids reading |
| ___ knows sounds of letters | ___ has difficulty 'sounding out' new words |
| ___ can recognize some words | ___ cannot remember what's been read |
| ___ shows an interest in books | ___ reads very slowly |
| ___ enjoys being read to | ___ doesn't get jokes |
| ___ talks about stories | ___ is reluctant to read aloud |
| ___ likes going to bookstores | ___ frequently asks how to spell words |

Please add your own thoughts about your child's challenges or learning in general.

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Appendix E

Private Literacy Clinic Teacher Questionnaire

Thank you for completing this short questionnaire. The information you provide will be used to plan an appropriate 1:1 literacy intervention program for the student designed to support her/his learning at [the student's elementary school] during grade [student's grade].

Teacher completing the questionnaire:

Contact number/email:

Student's current reading level:

Please list ALL instructional reading and writing materials used with the student.

Please describe the student's reading and writing behaviors in terms of her/his strengths and needs.

What are the unique characteristics of the student's learning style?

In your opinion, what specific skills should be the focus of the student's reading and writing literacy development program as they relate to the Common Core Standards initiative?