

Continuing the Debate: A Response to the *Literacy Research Association's Dyslexia Research Report*

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ABSTRACT

The Literacy Research Association (LRA) is known for releasing research reports on essential topics in the field of literacy. *An Examination of Dyslexia Research and Instruction, with Policy Implications* is a recent LRA report with far-reaching impact in education and policy. The report claimed to be a summary of dyslexia research and instruction, however, much recent research on dyslexia definitions, diagnosis, interventions, neuroscience, and law was left out. This paper is a response to the LRA report with the intent to examine elements of the report that are particularly important and well explained, as well as those that are problematic.

Key words: Dyslexia, Literacy, Research Report, Diagnosis, Intervention, Education Policy

INTRODUCTION

The Literacy Research Association (LRA) is known for releasing research reports on essential topics in the field of literacy, written by respected scholars. One of the more recent reports, *An Examination of Dyslexia Research and Instruction, with Policy Implications* (Johnston & Scanlon, 2020), was commissioned by the LRA as a “comprehensive, accessible summary on the current state of dyslexia-related research to assist policy-makers, educators, parents, advocacy groups and others in their decision-making” (LRA, 2021). The LRA explained in a press release, “as the premiere literacy research organization, it is LRA’s responsibility to share unbiased research reviews” to assist in decision and policy making (LRA, 2021). As such, this is an important report with far-reaching impact in education and policy.

The authors of the report invite “engagement in the issues that face stakeholders (including educators, parents, and policymakers) in relation to dyslexia and related literacy instruction” in the form of responses to hypothetical Frequently Asked Questions (FAQs), penned by the authors (Johnston & Scanlon, 2020, p. 3). This paper represents my response to that invitation. The 12 FAQs and corresponding answers were classified into the following themes: defining dyslexia, screening and diagnosis, appropriate instruction, and biological and neurological basis for dyslexia. These four themes will serve as the structure to my response. I will respond to Johnston and Scanlon’s (2020) research brief with the intent to discuss elements of the report that are particularly important and well explained, as well as those that are problematic.

POSITIONALITY STATEMENT

As I respond to this research report, I realize I am a member of the group of dyslexia advocates Johnston and Scanlon (2020) deem a “well-organized and active contingent of concerned parents and educators” (p. 2). I am the mother of a child diagnosed with dyslexia, and I have testified to the Montana State Legislature’s Education Committee in support of dyslexia Bill SB140 (2019). As a researcher in the field of social sciences, I acknowledge “that all meaning is situated in a particular perspective or context” (Mills & Gay, 2019).

To read and respond to scholarly works such as this one, which directly affect not only my research and education practice but my personal interests, I must constantly be aware of my own biases towards dyslexia research, identification, and instruction. I must draw upon my training as a scholar to look at the authors’ words objectively, while simultaneously acknowledging that my thinking stems from my epistemological lens, which is an amalgamation of all my life’s experiences (Scherer & Guttersrud, 2018). Many researchers in the social sciences value relationality and positionality as important tools of research, in which personal and community perspectives and relationships are legitimate ways of making meaning (Wilson, 2008; Windchief et al., 2018). With positionality in mind, I can examine the authors’ statements by evaluating sources, overall logic, considering missing pieces, and the relevance of arguments through the lens of my personal experience.

DEFINING DYSLEXIA

Johnston and Scanlon (2020) explain that dyslexia has been the cause of “sometimes heated disagreement among

researchers and educators – disagreements that, in one form or another, go back well over a century” (p. 2). Research on dyslexia has been evolving since the first official reference to the term in 1872 when a doctor could not understand why an otherwise unimpaired teenager would be unable to read and decided he must have a vision impairment (Guardiola, 2001, p. 6). Some years later, an ophthalmologist named Hinshelwood described dyslexia as a “congenital blindness for words,” and word blindness became the popular reasoning behind the phenomenon (Smirni et al., 2020). In the early part of the 20th century, Orton studied the reading errors of individuals with dyslexia and began to describe it as a language disorder, attributing it to a brain processing issue (Kirby, 2020). Contemporary investigations continue to refine our understanding of dyslexia. Debates center around whether there is a difference between dyslexia and poor reading in general and question the utility of the designation altogether (Elliott & Gibbs, 2008; Elliott & Grigorenko, 2014; Vellutino, 1979).

Johnston and Scanlon (2020) state, “There is much disagreement about how to define dyslexia...There are many, often conflicting, definitions...” (p.3). The authors quote the widely accepted definition by the International Dyslexia Association (IDA) and then offer one study that examined only four different definitions as evidence for conflict. It is important to know that the IDA definition was developed over three years by a large team of researchers in conjunction with the National Center for Learning Disabilities and the National Institute of Child Health and Human Development (IDA, 2021). Studies other than the one cited by the authors have looked at more definitions and worked towards compiling the elements in common (Hammill & Allen, 2020; Zirkel, 2020). For example, Hammill and Allen (2020) examined sixteen different dyslexia definitions and identified five common elements. Much recent research holds the following criteria in common when defining dyslexia: brain-based; occurs on a spectrum; is not related to intelligence; impairs reading ability through difficulty with phonological processing, spelling, decoding, and working memory; and can be inherited in some families (IDA, 2021; Johnson, 2019; Moats & Dakin, 2017;; Wanzek & Vaughn 2020).

Citing one definition and one small-scale study is insufficient evidence to claim educators should stop using the term altogether, however, the authors bring up an important point. The dyslexia debate is an example of the scientific process in action: debating ideas and evidence, defining and redefining concepts, and recognizing that those concepts may change in the face of new evidence. Simply insisting that since a term is hard to define, it is not useful, is a classic example of a straw man logical fallacy. At a certain point, these types of debates simply boil down to semantics.

Johnston and Scanlon (2020) point out a vital issue in the problem with defining that which occurs on a spectrum, that of defining criteria for inclusion in research. The field must have a solid definition to move forward with more and better experimental studies related to dyslexia.

Internal validity issues exist within a study if the construct is not well-defined and external validity issues occur when that definition varies across studies (DeVellis, 2017). Most studies under question do define dyslexia internally. Examining the construct of dyslexia across the multitude of studies reveals an important issue with external validity and replication. Part of the difficulty with defining dyslexia is its history of debate (Kirby, 2020). Another difficulty is that it occurs on a spectrum, along with many neurobiological differences. In addition, dyslexia is directly tied to the process of reading, which also has a history of debate (Castles et al., 2018).

One significant consequence of a lack of definitive consensus on defining dyslexia is the persistence of misconceptions among educators and the public (Moss, 2019). Perhaps because dyslexia was first defined as a visual problem, this is still the most enduring misconception today. Vellutino et al. (2004) explained, “contrary to popular belief, impaired readers do not see letters and words in reverse, nor do they suffer from...visual anomalies of the types proposed in the early literature” and no causal relationship exists (p. 41). Research into teacher knowledge about dyslexia revealed misconceptions related to vision and letter reversals as the most significant diagnostic criteria, as opposed to phonemic awareness (Gonzales & Brown, 2019, Washburn et al., 2014).

It is time for researchers to synthesize these definitions, given the more recent advances in dyslexia research. The future of dyslexia research would greatly benefit from such examinations, moving towards more precise definitions to quantify the phenomenon of dyslexia more precisely. The field of literacy research will benefit from working towards further consolidating the definition. The science of reading demands that research conform to norms of validity and reliability (Shanahan, 2020), and definitions of constructs under study is a key place to focus.

SCREENING AND DIAGNOSIS OF DYSLEXIA

The authors highlight dyslexia as a condition that occurs on a spectrum, which makes defining and diagnosing more difficult. Many neurobiological conditions occur on a spectrum (American Psychiatric Association [ASA], 2013). Highly trained professionals look at common symptoms to determine the diagnosis and best intervention. A patient would visit a specialist who examines data related to symptoms, compares them to standard metrics, and makes a diagnosis based upon precise training, expertise, and judgement. Like the dyslexia debate, some researchers question whether the common cold is simply a cultural concept because medical definitions vary, as do difficulties in diagnostic specificity (Eccles, 2013). Claiming that a dyslexia diagnosis is not valid because there is not one definitive test is a slippery slope logical fallacy. If one were to follow that logical path, one would also have to discontinue and discredit all neurobiological labels occurring on a spectrum and requiring a battery of assessments, as is the case with ADHD, Autism, Schizophrenia, or Depression (Matson et al., 2007).

Johnston and Scanlon (2020) suggest that although screening of early literacy skills is important, it “does not imply screening for dyslexia” (p. 9). The one aspect of dyslexia screening examined in this report is that of family history. However, screening for dyslexia should include multiple validated tests, which are most effective when a combination of risk factors are assessed (Washington et al., 2020; Sanfilippo et al., 2020; Wagner, 2018). The National Institute of Health (NIH) has stated, “Dyslexia is identifiable with 92% accuracy by ages 5.5 and recommends “early identification and assessment of disabilities in children” (IDEA, 2017). Examples of common validated and norm-referenced screening tests for dyslexia include Test of Phonological Awareness (TOPA), Comprehensive Test of Phonological Processing (CTOPP), Gray Oral Reading Tests (GORT), DIBELS, Dyslexia Screening Test (DST), and Wide Range Achievement Test (WRAT) (Reid, 2016).

Johnston and Scanlon (2020) acknowledge, “Some children experience more difficulty than others becoming literate, often at great emotional, intellectual, social and economic cost” (p. 2). This is an especially salient point in a discussion of dyslexia. Struggling with dyslexia has long-lasting social, emotional, and economic consequences, including anxiety, low self-esteem, jail time, school dropout, and suicide attempts (Foreman-Sinclair, 2012; Livingston et al., 2018). The consequences of not providing early screening and diagnosis of dyslexia are severe.

APPROPRIATE INSTRUCTION AND INTERVENTION

Studies related to interventions for struggling readers cited in this report include one of the author’s own 25-year-old longitudinal study (Scanlon & Vellutino, 1996) as well as a 48-year-old look at remedial reading methods (Silverberg et al., 1973). In fact, the most recent research cited regarding instruction is 14 years old (Wanzek & Vaughn, 2007). The authors repeatedly emphasize and question “near-exclusive, phonics-based approaches to reading instruction” (Johnston & Scanlon, 2020, p.11). Intervention and remediation of dyslexia are heavily phonics-based because this is the area of deficit (Birsch & Carreker, 2018). According to Response to Intervention (RTI) models, once the phonological/phonics deficit is remediated, then the student intervention intensity would change. The reading brain cannot comprehend when decoding is not automatic (Moats, 2020).

However, the instructional approach recommended is not exclusively intensive phonics instruction. The recommended “daily dose” of phonics instruction for all readers is 30-45 minutes a day (Cunningham, 2015). It is important to make the distinction here between intervention methods and an overall instructional approach. The authors consistently conflate intervention with instructional models, in essence, Tier 2 and 3 interventions with Tier 1 instruction. A plethora of contemporary studies attest to the fact that there is a widely accepted intervention for reading difficulties, specifically dyslexia (Birsh & Carreker, 2019; Fletcher

et al., 2014; Ehri et al., 2016; Moats, 2020; Mills, 2018; Seidenberg, 2017).

Johnston and Scanlon (2020) appear to have misconstrued the concept of the science of reading when they assert dyslexia interventions are “based on a narrow view of science, and a restricted range of research, focused on word learning and, more recently, neurobiology, but paying little attention to aspects of literacy like comprehension and writing” (p.2). Moats (2020) explained,

The body of work referred to as the ‘science of reading’ is not an ideology, a philosophy, a political agenda, a one-size-fits-all approach, a program of instruction, nor a specific component of instruction, it is the emerging consensus from many related disciplines, based on literally thousands of studies, supported by hundreds of millions of research dollars, conducted across the world in many languages. These studies have revealed a great deal about how we learn to read, what goes wrong when students don’t learn, and what kind of instruction is most likely to work best for the most students (pp. 3-4).

For example, The National Reading Panel (2000) in the United States examined more than 115,000 studies related to a broad range of reading skills, including comprehension, and found significant positive effects of instruction in the areas of phonemic awareness, systematic phonics instruction, repeated oral reading, vocabulary instruction, and comprehension for all types of readers. These findings, and others like it since, contribute to the body of knowledge commonly referred to as the science of reading. It is simply an examination of the efficacy of successful reading instruction to pinpoint specific effective practices within the complex skill of reading.

Johnston and Scanlon (2020) complain that current dyslexia laws “are largely aligned with the SOR perspective” and “change the distribution of resources and educational practices” (pp. 2-3). Interestingly, in a recent review of state dyslexia laws, Zirkel (2020) found, “the laws in the majority of these states contain no requirements with regard to interventions” (p. 1). For example, the state of Montana passed SB140: Establish the Montana Dyslexia and Intervention Act (2019), which mandates that school districts must identify, screen, and provide “best practice” interventions for students with dyslexia but does not specify any specific programs or even any specific screening tools (p. 2). This isn’t an example of resources being taken away from some children and given to others based on a diagnosis. Instead, this is an instance of resources being guaranteed by law to those students who require it. Should all students be given these types of instruction? Most likely. Nevertheless, if all students already are, then it cannot be a problem of changing distribution, but of getting students what they need. Unfortunately, American history is rife with examples of students unable to get what they need until there is a corresponding law to protect that right such as the Individuals with Disabilities Education Act, Title IV, and the Civil Rights Act.

Johnston and Scanlon’s (2020) critiques assume that appropriate instruction is currently delivered with fidelity in classrooms and that students identified with dyslexia

receive the reading instruction they need, regardless of the label. After all, if it is appropriate for all and necessary for some, why bother with labels and simply give everyone what works? Sadly, this is not the reality in schools today. According to UNESCO (2021), worldwide, it is estimated “773 million adults and young people lack basic literacy skills” and “617 million children and adolescents are not achieving minimum proficiency levels in reading” (p.1). Specifically, in America, *The Nation's Report Card* revealed that only 35% of public and private school students in 2020 were at or above proficient in reading (National Center for Education Statistics, 2020). In addition, there have been no significant score changes in 2020 compared to scores from 2012. This evidence suggests that not only is the state of reading acquisition in America markedly low but that it has not improved in almost a decade. Studies have highlighted teacher inadequacy in basic language concepts such as phonics principals (Washburn et al., 2011). If every student received excellent reading instruction, backed up by research and delivered by highly trained teachers, then diagnoses and labels might not be such an important distinction.

Rotatori et al. (2011) explained, “Students diagnosed with dyslexia are at a disadvantage in the public-school systems because their reading acquisition needs are usually not met when the schools implement resources that do not address their specific needs” (p. 16). Several successful federal class-action lawsuits in America were settled recently which established law precedent in cases of unmet intervention needs of students with dyslexia. *O.R et al. v. Clark County School District* (2018) ruled that by not ensuring a child with dyslexia receive “Orton Gillingham or similar structured literacy intervention, the district had denied the child a “free appropriate public education under the IDEA” and was therefore “in violation of Section 504 and the ADA.” The ruling reiterates that school districts are not required to always include an instructional methodology in a student’s Individualized Education Plan (IEP); however, “a student’s individual needs may require a certain methodology if the IEP team determines it would be necessary to receive FAPE (Free Appropriate Public Education)” and in this case, the dyslexic student “did require an equivalent methodology that was a) research based, b) systematic, c) cumulative, and d) rigorously implemented” (*O.R et al. v. Clark County School District*, 2021).

In the case of *Student A. et al. v. Berkeley Unified School District* (2021), the court ordered the district to “adopt reading intervention programs aligned with the Science of Reading”. In other words, these cases set precedent that students with dyslexia require both a specific method of delivery (research-based, systematic, rigorous, etc.) and specific intervention content focusing on programs which emphasize phonemic awareness, phonics and decoding skills. Thus, the label and diagnosis become the vehicle driving appropriate instruction for these children, the ones for whom systematic and direct literacy intervention is necessary. Consequently, the “organized and loud contingent” (Johnston & Scanlon,

2020, p. 2) have mobilized to demand the diagnosis and the labels.

Johnston and Scanlon (2020) assert, “Those who believe that dyslexia is a useful diagnostic category... supported the Orton-Gillingham (OG) and derivative approaches ... despite 90 years of use, there is little other than testimonial evidence that this approach has been successful” (p. 10). The authors describe a study which “demonstrated a substantial negative impact on comprehension a year after students participated in an O-G-based intervention” (p. 10). The data supporting this claim comes from a study published in 1973 examining remedial reading programs, which is hardly evidence sufficient for reading scholars in 2021.

There are peer-reviewed studies on the effectiveness of Orton Gillingham based programs, such as the Sunday System, Barton, Foundations, Lexia Reading, and other structured literacy based approaches to remediating struggling readers with and without dyslexia, which show significant effects in early literacy skills and overall reading measures (Chia & Houghton, 2015; Duff et al., 2016; Goss & Brown-Chisdey, 2012; Harris et al., 2009; Kakavand et al., 2017; Nair et al., 2018; Magpuri-Lavell et al., 2014; Lim & Oei, 2015; Macaruso & Walker, 2008; Martin et al., 2000; Mihandoost et al., 2012). For example, Ritchkey and Goeke (2006) examined research on reading outcomes associated with OG based reading programs. In the studies examined, some of the settings utilized OG as the primary reading instruction in the general classroom, while other studies utilized OG as intervention with at risk readers and students in special education programs. They found nine of twelve studies showed that OG instruction was effective, with the largest effect in word-attack and comprehension outcomes.

Although many studies show significant gains in reading utilizing these types of structured literacy programs, it is apparent by browsing through the *What Works Clearing House* reports, that more purely experimental research design is needed (National Center for Education Evaluation, 2021). Utilizing larger comparative samples of students with a control population would further strengthen the research base (Mills & Gay, 2019). It is also important to remember that these OG-based programs are be utilized as interventions, not as complete units of reading instruction.

The National Reading Panel (2000) report, which the authors frequently cite throughout the brief, states, “explicit, systematic phonics instruction is a valuable and essential part of a successful classroom reading program” (p. 222). It seems that given the state of reading instruction in America, all proponents of literacy research and education would welcome techniques that positively affect all students. I wholeheartedly agree with Johnston and Scanlon’s (2020) assertion that teachers “need a deep understanding of early literacy development and teaching strategies in order to teach effectively” (p. 23). Such understanding of early literacy needs would reveal that emergent literacy skills should include explicit instruction in phonemic awareness and phonics (Cunningham, 2015; Moats, 2019).

BIOLOGICAL AND NEUROLOGICAL BASIS FOR DYSLEXIA

Johnston and Scanlon (2020) question whether “there is a biological basis for some children’s difficulties becoming literate” and explain “studies of people’s brains... have not shown differences between poor readers in general and those classified as dyslexic (p. 5-6). In the brief mention of neuroscience, all but one of the sources cited are more than a decade old. One glaring omission from this report is the lack of discussion around the most recent advances in brain imaging technology and the wealth of insight into the dyslexic brain which neuroscience has allowed in recent years.

Contemporary studies have shown there is a demonstrated difference between the brains of proficient readers, poor readers, and those with dyslexia (Birsch & Carreker, 2018; Galaburda et al., 2018; Kearns et al., 2019; Washington et al., 2020). In fact, “advances in...functional brain imaging have led to a replicated, robust neural signature for dyslexia” (Shaywitz & Shaywitz, 2020). Specific differences include reduced white and grey matter in the brain, differences in symmetry, and an increase in the size of the corpus callosum (Guidi et al., 2018; Kershner, 2019; Skeide et al., 2018; Tschentstschler et al., 2019). Kearns et al. (2019) explained, “these data suggest that readers with dyslexia activate different regions and use different pathways” (p. 181). Through a series of brain scans, Shaywitz and Shaywitz (2003) showed that individuals with dyslexia who became proficient readers used different areas of the brain than both non-dyslexics and dyslexic struggling readers. This suggests for an individual with dyslexia to become a proficient reader; they must bypass the usual brain areas used by neurotypical proficient and poor readers.

This evidence in the differences in the brains of neurotypical readers versus readers with dyslexia has direct instructional implications. Implications for instruction suggest that dyslexic students need to be taught in a way which allows them to access the appropriate areas of their brain. Birsch & Carreker (2019) explain students with dyslexia must establish “alternative circuits for word recognition to compensate for disruption of circuitry normally relied on for reading” (p. 63). Successful strategies which allow this process to occur are well-documented and include direct, explicit, multi-sensory instruction in phonemic awareness and phonics (IDA, 2017; Johnson, 2019; Kearns et al., 2019; Mills, 2018; Moats & Dakin, 2017). In addition, research has shown that direct, systematic, and multisensory instruction is the basis of effective reading instruction (Al Otaiba et al., 2019; Moats, 2020; Wanzek & Vaughn, 2020). Stein (2004) maintains that research into genetic and neurological components of dyslexia “makes it impossible to maintain that it is ‘purely psychological’ as it has a clear biological reality” (p. 77).

CONCLUSION

The LRA research brief claimed to be a summary of dyslexia research and instruction. However, much recent research on dyslexia definitions, diagnosis, interventions, neuroscience,

and law has been left out. The report appears to have an agenda to refute and discredit the concept of dyslexia and phonics related interventions. In fact, five out of twelve questions in the report argue more about phonics instruction than dyslexia. The LRA claims to produce “unbiased research briefs” (LRA, 2021). If that were true in this instance, readers would have been presented with a more balanced presentation of the research, providing both supporting and contradicting results related to dyslexia. A genuinely unbiased report would also have examined more research on both sides of the debate, rather than a very distinct focus on discrediting specific methods. Johnston and Scanlon’s (2020) report is a perfect example of the continued debate surrounding dyslexia. In addition, this report could be viewed as an embodiment of the ongoing “reading wars” that have been a part of the history of reading research and education for a very long time (Castles et al., 2018). With the publication of this LRA report and my response, we continue the legacy.

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