Dyslexia and Georgia Senate Bill 48

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The interest in and understanding of dyslexia has become increasingly important in educational fields and the legislative process in the United States. This article provides information on what dyslexia is, the history of research on dyslexia, dyslexia laws across the US, and Georgia's Dyslexia Law: Senate Bill 48 and its impact on educational entities.

keywords: dyslexia, laws, Senate Bill 48, dyslexia intervention

In recent years there has been an expansion of disability legislation in the US, specifically dyslexia legislation. In fact, Georgia has a new dyslexia law, Senate Bill (SB) 48, which was signed into law on May 2, 2019. This article is written to provide information on dyslexia, including past and present dyslexia research, as well as information about dyslexia legislation in the US. In addition, the article presents how SB 48 may impact colleges of education, local educational agencies, and classroom teachers.

Dyslexia Defined

The International Dyslexia Association (IDA) and the National Institute of Neurological Disorders and Stroke (NINDS) defines dyslexia as a neurobiological disorder. Characteristics include difficulty with accurate and/or fluent word reading and poor spelling and decoding abilities. Typically, difficulties result from deficits in the phonological component of language that are unexpected in relation to other cognitive abilities and unexpected in relation to the provisions of effective classroom instruction. This may cause concerns with reading comprehension and reduced reading experiences that impede vocabulary growth and background knowledge. Individuals with dyslexia do not exhibit cognitive concerns (IDA, 2019; NINDS, 2019). The reading concerns are unexpected for the child's age and other academic abilities (Lyon et al, 2003; Shaywitz et al., 2008). For example, the explanation for the reading concerns cannot be explained by sensory deficits, cognitive difficulties, poor motivation, or lack of reading instruction (Lyon et al, 2003). Neuroimaging studies imply that

dyslexia is associated with differences in the neuro networking of brain regions associated with typical reading development (D'Mello & Gabrielli, 2018; Shaywitz et al., 2008).

Dyslexia is a multidimensional learning difference. Individuals with this disorder have difficulties with reading and other language skills. They often have difficulty with spelling, writing, and pronouncing words (IDA, 2019; Simon, 2000). Dyslexia is a persistent chronic condition and is not transient in nature (Berninger et al., 2008; Berninger et al., 2009; IDA Basics, 2019; Shaywitz, 1998). It is referred to as a learning disability because dyslexia makes it hard for students to succeed within the general educational classroom. Depending on the severity of their deficit, many students with dyslexia qualify for special education, special accommodations, or extra support services (IDA Basic, 2019). However, like most disorders, the impact of dyslexia may present varying degrees of severity across timelines (Shaywitz et al., 2008). For example, the impact of dyslexia may be profoundly felt in early elementary when learning to read. Even with successful early intervention, the disorder may significantly impact learning again in middle school and high school, when more technical and sophisticated content vocabulary and discourse are introduced (Kamil et al., 2008), as well as when trying to meet requirements for learning a foreign language (Schneider & Crombie, 2003; Simon, 2000).

Past and Present Research on Dyslexia

Dyslexia is the most common neurobehavioral disorder that affects children, with estimated prevalence rates ranging from 3 to 10 percent to upwards of 17percent (e.g., Gabrieli, 2009; Shaywitz, 1998; Shaywitz et al., 1994; Snowling & Hulme, 2011). It affects about 80% of individuals identified as learning disabled (Lerner, 1989). Different theories have been proposed for the underlying causes of dyslexia. Suggested causes include abnormalities with the visual system (Stein, 2001), language system (Liberman, 1973; Liberman et al., 1974), working memory (Berninger, et al., 2006; Swanson & Ashbaker, 2000; Swanson & Siegel, 2001), as well as other factors such as temporal processing of stimuli within these systems (Neville et al., 1993; Stein & Walsh, 1997). However, the vast body of research suggests dyslexia is primarily a phonological processing disorder (e.g., Berninger et al., 2006; IDA, 2019; Peterson & Pennington, 2012, Stanovich, 1988; Wagner & Torgesen, 1987).

Past Research

Prior to the adoption of current technology, postmortem

evaluations provided cerebral anatomy advances regarding dyslexia. Paul Broca, a French surgeon in the 1860s, noted individuals with trauma to the brain exhibited a specific type of aphasia, an inability to understand or express speech (Carroll, 2008). These individuals often spoke in a halting manner primarily using nouns and verbs with omission of function words. However, they were able to demonstrate intact comprehension. Post-mortem examinations revealed damage to frontal regions of the left hemisphere in these individuals. This region of the brain is now known as Broca's area (Carroll, 2008; Hallahan & Mercer, 2007). Shortly after Broca's discovery a German surgeon, Carl Wernicke, discovered a different form of aphasia in which patients exhibited fluent nonsensical speech but impaired comprehension. The left temporal lobe, near the auditory cortex, was damaged in these patients and is now known as Wernicke's area (Carroll, 2008; Hallahan & Mercer, 2007), see Figure 1. Both physicians' work has stood the test of time and added substantially to the scientific community's knowledge of the left hemispheric dominance of language.

Descriptions of specific reading impairments both acquired and congenital began to emerge in the 1870s. In the mid-1890s, journal correspondences between John Hinshelwood, a French physician, and W. Pringle Morgan, a British physician, shifted the understanding of acquired reading impairment from adults to children with congenital reading deficits (Hallahan & Mercer, 2007). Samuel Orton, a neurologist (Henry, 1998) and a neuropathologist (Orton et al., 1975; Rawson, 1987) in the United States, began to study reading disabilities and noted, using newly designed intelligence quotient tests, many of the children he studied had average to above average intelligence (Hallahan & Mercer, 2007). Orton also suggested familial tendency for reading disabilities. He was among the first to suggest a neurological basis for the reading disorder and to associate the disorder with speech and language (Orton et al., 1975). Dr. Orton also addressed the comorbid nature of dyslexia with emotional and behavioral issues (Henry, 1998).

Norman Geschwind's (1965) work in aphasia, apraxia, and hemispheric dominance continued the advancement of the neurobiological understandings of dyslexia. Geschwind observed that a majority of non-impaired individuals had brain asymmetry with a larger left planum temporale than right in Wernicke's area (see Figure 2). He hypothesized the larger planum temporale of the left side may explain the dominance of the left hemisphere for language (Geschwind & Levitsky, 1968). It was later found individuals with dyslexia did not show the same asymmetry in this area. Together, Geschwind and Albert Galaburda brought forth the idea that dyslexia

may be a result of early developmental changes in the cerebrum (Galaburda et al., 1985; Springer, 1987).

Liberman's seminal research in the 1970's stressed the importance of phonological awareness in reading acquisition (Liberman, 1973; Liberman et al., 1974) and promoted the belief that there is an underlying core phonological deficit in dyslexia. A decade later Bradley and Bryant's (1983) longitudinal study indicated that children's awareness of rhyming and alliteration prior to formal education influenced later reading and spelling. In the late 1980s Wagner and Torgesen (1987) expanded the phonological processing concerns in dyslexia.

Present Research

The causes of any disorder are layered; they may have internal as well as environmental factors (Cowan, 2010). In addition, it is important to bear in mind that the causes of developmental disabilities are multifaceted; there may not be one single cause, but rather several different causes (Cowan, 2010). Advances in the epidemiology of dyslexia from neurobiology, genetics, and cognitive influences have allowed practitioners to approach dyslexia within a traditional medical framework (e.g., Alexander & Slinger-Constant, 2004; Gabrieli, 2009; Shaywitz, 1998). Data from epidemiologic studies indicate dyslexia fits a dimensional model, such that individuals with dyslexia present the disorder along a continuum with varying degrees of severity. However, the etiological research supports the belief of a phonological core deficit in the disorder (Stanovich, 1988; Wagner & Torgesen, 1987). This view is supported by the IDA (2019) and the National Institute of Neurological Disorders and Stroke (NINDS, 2019). In addition, recent research indicates dyslexia is a genetic disorder, and a number of genes have been identified that may predispose a person to dyslexia (NINDS, 2019).

Today's researchers have access to digital technology to study the working brain. Doctors Sally and Bennett Shaywitz from Yale (2005) utilized the noninvasive imaging of functional magnetic resonance imaging (fMRI) to analyze the brains of individuals with dyslexia and typical readers at work completing a set of hierarchical structured language tasks. The Shaywitz team's finding demonstrated individuals with dyslexia do in fact present different activation patterns while engaged in reading activities compared to unimpaired counterparts (Shaywitz et al., 1998). The activities, in order of simplest to complex language demands, consisted of visual-spatial processing, orthographic processing, simple phonological analysis, complex phonological analysis, and lexical-semantic decisions (Shaywitz et al.,

1998). An evaluation of brain activation patterns across tasks resulted in significant findings of group-task interactions in four posterior regions.

Consistent with modern neuroimaging, posterior cortical regions have been postulated to be important to the reading process (Geschwind, 1965). Please refer to Figure 2 for depiction of the posterior hemispheric region. Wernicke's area, the angular gyrus, and the striate cortex have been shown to be activated by typical readers when increasing orthographic and phonological demands were presented (Shaywitz et al., 1998). However, under-activation of these areas was shown to be statistically significant in individuals with dyslexia (Shaywitz et al., 1998). In addition to under-activation, individuals with dyslexia had over-activation in anterior regions of the brain compared to typical readers. The inferior frontal gyrus of individuals with dyslexia showed significantly greater activation in comparison to typical readers when presented with demands of increasing phonological difficulty (Shaywitz et al., 1998).

In addition to differences found in activation patterns in the left hemispheres, fMRI images of typical readers and those with dyslexia have shown different right hemispheric activation (Shaywitz et al., 1998). The readers without reading impairments showed greater activation in the left hemisphere for these areas, while individuals with dyslexia had greater activation in the right hemisphere. It is important to note these activation patterns were evident across all tasks (Shaywitz et al., 1998).

Neuroimaging has provided a neuro-signature (Gabrieli, 2009) for dyslexia and as a result there is general agreement within the scientific community that phonological deficits are at the heart of developmental dyslexia. Currently, however, there is not consensus as to the neural and sensory causality of the deficit (Goswami et al., 2011). As advances in medical technology continue, future research may be better able to synthesize the intricate complexities of the brain processes involved in developmental dyslexia.

Neuroimaging has also shown the positive impact on the brain when individuals with dyslexia receive proper intervention. Imaging studies have shown the brain's ability to increase activation, based on effective intervention, in regions associated with typical reading (e.g., Alexander & Slinger-Constant, 2004; Gabrieli, 2009). Normalization for phonological processing has been shown in the left temporo-parietal and frontal regions upon receiving effective dyslexia intervention. In addition, increased right-hemisphere activation has been shown immediately after intervention (Gabrieli, 2009). Though typical readers have decreased right

hemispheric activation, for individuals with dyslexia the increased right-hemisphere engagement may indicate a covenanted time where both the right and left hemispheres are activated to support reading (Gabrieli, 2009). For a review of studies indicating significant brain physiological changes please see Alexander and Slinger-Constant (2004) and D'Mello and Gabrieli (2018).

Hruby et al. (2011) point out current neuroscience studies of reading focus primarily on neuro structures and processes associated with decoding. This focus is not in tandem with the general scholarship found in reading and literacy education (Hruby et al., 2011). Therefore, it is important to keep in mind the complexities of reading and the very purpose of reading, to make meaning. Critical components of reading and reading scholarship include comprehension and related strategies, motivation, text selection, multiple literacies, and sociocultural relevant pedagogy (e.g., Allington, 2002, 2013; Boardman et al., 2008; Duke & Pearson, 2011; Guthrie, 2015; Rueda, 2013). Therefore, omission of these important reading components does not comprehensively represent the act of reading (Hruby et al., 2011).

Dyslexia Laws across the US

In 2013 there were only 22 states with dyslexia legislation (Youman & Mather, 2018). During 2018 the US witnessed an expansion of dyslexia legislation. From January to March of 2018 there were 33 dyslexia related bills introduced (Youman & Mather, 2018). The increase of dyslexia related legislation is in part compelled by grassroots organizations, such as Decoding Dyslexia (Youman & Mather, 2018), and individuals who have been impacted by dyslexia (Bhat et al., 2000; Rose & Zirkel, 2007), as is the case for SB 48.

The growth in dyslexia legislation has continued into 2019. Per the website, Dyslegia (2019), there were 75 dyslexia bills with either pending legislation or legislation being acted upon. The focus of current laws includes a) dyslexia awareness, b) screenings and intervention pilots, c) educator training, d) dyslexia provisions for accommodations and interventions and, e) rights for individuals with dyslexia (Youman & Mather, 2018).

Dyslexia Awareness

The label of dyslexia as a neurobiological disorder, as defined by the IDA (2019) and NINDS (2019), has received increased focus. This is in contrast to reading related impairments categorized within the Individuals with Disabilities Education Improvement Act (IDEA) as one type of *specific learning disability* (U.S. Department of Education, 2018) or the *Diagnostic*

and Statistical Manual of Mental Disorders-5 that uses an overarching terminology for a specific learning disorder with the addition of the specific academic area of concern (Petretto & Masala, 2017). For reading impairments the specifications for abilities of concern include word reading accuracy, reading rate or accuracy, and/or reading comprehension (Petretto & Masala, 2017). Many states have begun to define dyslexia per the IDA guidelines as a neurobiological disorder (Youman & Mather, 2018). Georgia is one such state. The adoption of a precise definition for dyslexia has helped to establish a model of identification based on inclusionary criteria versus exclusionary criteria (Adolf & Hogan, 2018; Odegard, 2019).

Another reason for the increase in dyslexia advocacy is that historically local education agencies (LEA) prohibited, or at the very least discouraged, educators from using the terminology, *dyslexia* (Macdonald, 2009; Youman & Mather, 2018). Due to the pervasiveness of LEA not using the word dyslexia, the executive director of the National Center for Learning Disabilities in May of 2015 requested the federal office of Special Education and Rehabilitative Services to issue guidance to LEA regarding the use of appropriate terms and provisions for accommodations (Wendorf, 2015). The office of Special Education and Rehabilitative Services did in turn inform school districts in October 2015 of the unique educational needs of children with dyslexia, dyscalculia, and dysgraphia. The 2015 letter set forth that IDEA does not restrict the use of the terms, dyslexia, dyscalculia, and dysgraphia in evaluations, eligibility requirements, or individual education plans (Youman & Mather, 2018; Yudin, 2015).

Screenings and Intervention Pilots

Per the Center on Response to Intervention (RTI) at American Institutes for Research (2019) a screener is used to predict students whose academic learning may be at risk. Screeners are brief and all students of a specific grade level are assessed, then typically followed with additional testing or progress monitoring (Center on RTI at American Institutes for Research, 2019).

Research indicates dyslexia may be predicted and possibly prevented in young children (Gabrieli, 2009; Shaywitz et al., 2008). A diagnosis of dyslexia is commonly made, in the United States, around grade 2 when a child is 7 to 8 years of age (D'Mello & Gabrieli, 2018; Gabrieli, 2009). The earlier the disorder is diagnosed and proper intervention is initiated, the length and intensity of intervention needed decreases (Gabrieli, 2009; Shaywitz et al., 2008; Torgesen et al., 2001). Early intervention is especially important for later fluency concerns

(Gabrieli, 2009; Torgesen et al., 2001). Therefore, recent legislation in the U.S. has included mandated universal screening and intervention (Youman & Mather, 2018) with the hopes of early prevention and intervention.

Some legislative action has specified universal screeners for all kindergarten students (Georgia General Assembly Legislation, 2019) or when students are first enrolled in school as a kindergartener or first grader (Youman & Mather, 2018). Screeners include: common processes correlated with dyslexia such as phonological awareness, rapid automatic naming, and letter to sound correspondence; and familial history of difficulty with literacy acquisition (Youman & Mather, 2018). Some states have supplemented screeners by requiring progress monitoring (Youman & Mather, 2018).

Educator Training

Though there has been an increase in legislation requiring universal screeners and appropriate intervention, often clarification on who will be responsible for implementing and monitoring screeners and outcomes is not adequately addressed (Youman & Mather, 2018). Some states have hired individuals with specialized training in dyslexia (Lonergan & Duthie, 2018) and in some cases the dyslexia specialist is at the district level. The dyslexia specialist may serve both special and general education students, but also increase dyslexia awareness and provide training to educators to work with individuals with dyslexia (Lonergan & Duthie, 2018; Youman & Mather, 2018). In addition, some states have stipulated special education teachers or other educators attend professional certification programs for the diagnosis and remediation of literacy related difficulties (Youman & Mather, 2018).

Dyslexia Provisions for Accommodations and Interventions

Legislative mandates for intervention have accentuated explicit instruction on essential components of reading (National Reading Panel [NRP], 2000). Research shows reading instruction that addresses core phonological deficits, such as phonemic awareness and spelling, is essential to support reading acquisition for students with dyslexia (e.g., Berninger & Amtmann, 2003; Gabrieli, 2009; Graham, Harris, & Chorzempa, 2002; Moats, 2006; Schlesinger & Gray, 2017, Snowling & Hulme, 2011). Bolstered by decades of reading research, mandates for reading intervention for individuals with dyslexia stress explicit and systematic instruction in phonemic awareness, phonics, fluency, and vocabulary and spelling (e.g., Berninger, Lee, Abbott, & Breznitz, 2013; Bradley & Bryant,

1983; Liberman et al., 1974; Shaywitz et al., 2008). Recent legislative actions are mandated and noncompliance may result in LEA losing government funding and possibly be subjected to legal action from parents (Youman & Mather, 2018).

Rights for Individuals with Dyslexia

Individuals with dyslexia who do not receive adequate support and intervention are subjected to dire consequences (Lonergan & Duthie, 2018). The persistent nature of dyslexia has marked consequences on reading outcomes for early elementary to high school students. Students who struggle with reading in grade 1 have a 90% prospect of reading poorly in grade 4 (Gabrieli, 2009), furthermore struggling readers in grade 3 have a 75% probability of continued reading concerns in high school (Francis et al., 1996; Gabrieli, 2009). Poor reading in early elementary grades has a negative impact on reading to learn in later educational years (Gabrieli, 2009). Therefore, legislation is necessary to mitigate the negative long-term effects of dyslexia (Lonergan & Duthie, 2018). In addition to schools and school districts, the new legislative action affects other areas such as the protocol for college entrance exams and protection in the work place. Please see Youman & Mather (2018) for specific laws.

Georgia's Dyslexia Law: Senate Bill 48

Dyslexia Awareness

Georgia was one state that passed significant dyslexia legislation in 2019. The State's dyslexia law, Senate Bill (SB) 48, was signed into law in May 2019. The new law defines dyslexia as a neurobiological-based disorder and provides definitions and characteristics of dyslexia and disorders, as well as terminology associated with dyslexia and dyslexia intervention. [(Georgia General Assembly Legislation, 2019: SB48. Passed. Reg. Sess. 2019-2020. 20-2-159.6. Sect. 1 (a)(1-8)]. The definitions and terminology provide common language for parents and the educational community and will hopefully prevent LEA from not using the word dyslexia and other related terminology. The term Structured Literacy™ is referred to in SB 48 and is defined as in the IDA Structured Literacy™ Introductory Guide (IDA, 2019). The term indicates the principals of effective literacy instruction are followed and includes, (a) the modeling of instructional tasks, (b) explicit instruction is provided for foundational skills and higher-level literacy concepts, (c) prerequisite skills are taught before more advanced skills, (d) meaningful language interactions are embedded in lessons, (e) multiple practice opportunities are provided, (f)

corrective feedback to student responses, (g) student effort is encouraged, (h) student engagement is monitored and scaffolded during teacher modeling (i) independent student work is monitored and facilitated, (h) students must meet lesson criterion before moving on to more advanced skills (IDA, 2019).

Screenings and Intervention Pilots

As in other states' legislation, SB 48 stipulates universal screeners and pilot programs. Under SB 48, no later than July 1, 2020 the State Board of Education must have procedures in place for referring students kindergarten through grades 3 for dyslexia screening who have been identified through the LEA RTI process as having concerns for dyslexia and/or other disorders. The State Board of Education is to provide a list of approved qualified dyslexia screening tools. Screeners must include phonological and phonemic awareness, sound symbol recognition, alphabet knowledge, decoding and encoding skills, and rapid automatic naming, [(Georgia General Assembly Legislation, 2019: SB48. Passed. Reg. Sess. 2019-2020. 20-2-159.6. Sect. 1 (b)(1)(2)(A-F)(3)].

Educator Training

Additional advocacy measures require the Georgia Department of Education to issue a dyslexia informational handbook by December 1, 2019. The handbook will provide information and guidance to LEA for the implementation of evidence based practices for educating students exhibiting characteristics of dyslexia. The handbook information pertains to kindergarten through grade 3 students who have been identified through the RTI process as exhibiting concerns for dyslexia. The handbook will provide information regarding evidence based and targeted pedagogy designed specifically for dyslexia, guidance on the development of instructional plans for students exhibiting concerns, meaning-centered literacy utilizing best practices, curricula that is developmentally appropriate with engaging materials and pedagogy, structured multisensory approaches to language and reading skills, and suggested training programs to meet the needs of students with dyslexia concerns. [(Georgia General Assembly Legislation, 2019: SB48. Passed. Reg. Sess. 2019-2020. 20-2-159.6. Sect. 1 (c)(1-7)]. In addition, the Georgia Department of Education (DOE) in collaboration with the Professional Standards Commission will be required to update professional development opportunities for training specifically related to dyslexia. The intent is to focus training and coaching on dyslexia and other disorders. The DOE is to identify high-quality trainers to provide support to LEA

utilizing a coaching model to develop school level dyslexia experts [(Georgia General Assembly Legislation, 2019: SB48. Passed. Reg. Sess. 2019-2020. 20-2-159.6. Sect. 1 (d) (1-2)]. Furthermore, the DOE is mandated to develop training modules for all instructional personnel regarding dyslexia, and to provide structured multisensory approaches to teach language and literacy as well as accommodations for students exhibiting dyslexia and related concerns. Lastly, training is required to focus LEA and school system policies and procedures as related to RTI in addressing literacy, mathematics, and behavior with educators being notified annually of changes in policy, procedures, and specific instructional methodologies [(Georgia General Assembly Legislation, 2019: SB48. Passed. Reg. Sess. 2019-2020. 20-2-159.6. Sect. 1 (d)(3-5))].

Dyslexia Provisions for Accommodations and Interventions

Starting in the academic year 2020-2021 a three year pilot program will be established to demonstrate and evaluate the effectiveness of early reading support for students with dyslexia concerns. Three districts, at minimum, will be selected by the State School Superintendent. Preference is for an LEA in an urban setting, suburban setting, and a rural setting. The Superintendent will consult with recognized organizations that specialize in Structured Literacy™ for instructing students with concerns of dyslexia to establish and operate the pilot program [(Georgia General Assembly Legislation, 2019: SB48. Passed. Reg. Sess. 2019-2020. 20-2-159.6. Sect. 1 (e)(1)]. Per SB 48, the application processes for LEA interested in applying for the pilot program are to include: (a) a method for screening for low phonemic awareness, rapid automatic naming, and dyslexia characteristics, (b) provisions for students with dyslexia concerns to receive an IDA approved reading program via a teacher trained in Structured Literacy™ per the IDA's Knowledge and Practice Standards, and (c) a manner for evaluating the effects of the reading program on students with dyslexia concerns. [(Georgia General Assembly Legislation, 2019: SB48. Passed. Reg. Sess. 2019-2020. 20-2-159.6. Sect. 1 (e)(2)(A-C)].

Rights for Individuals with Dyslexia

Once selected, the LEA will be required to screen all kindergarten students for characteristics of dyslexia, and may screen for other disorders. In addition, students in grade 1 through 3 who have been identified via the LEA's RTI as having concerns for dyslexia will be screened for dyslexia and may be screened for other disorders. The LEA will provide appropriate reading intervention support for students

identified for dyslexia concerns and ascertain if the intervention provided improves students' language processing and reading skills. All LEA participating in the pilot study will be mandated to comply with all applicable state and federal laws and require parents or guardians of students with dyslexia concerns to communicate in writing that they voluntarily and knowingly consent to their child's participation in the pilot program for reading intervention services. In addition, the LEA will provide the parents or guardians with information about dyslexia and recommended interventions. [(Georgia General Assembly Legislation, 2019: SB48. Passed. Reg. Sess. 2019-2020. 20-2-159.6. Sect. 1 (e)(3-4)].

Impact on Education Preparation Providers

It is important to systematically support struggling readers with dyslexia and provide educators with the necessary training to work with individuals with dyslexia. Senate Bill 48 will have an impact on Education Preparation Providers (EPP), the institutions that provide undergraduate teacher candidate instruction as well as instruction for candidates in graduate teaching programs. Section 2 of SB 48 amends Subpart 1 of Part 6 of Article 6 relating to certified professional personnel in elementary and secondary education. Per the new Code section, by December 30, 2019, the Professional Standards Commission (PSC) is mandated to create a dyslexia endorsement for teachers to be trained in recognizing and responding to students with concerns for dyslexia and language-based disorders, for example expressive or receptive language concerns. The development of the GAPSC rules were in association with the Georgia Department of Education and a Dyslexia Task Force. The task force included individuals from across the state of Georgia with literacy expertise, including college and university literacy faculty, qualified practitioners (e.g., psychologists, speech language pathologists, dyslexia practioneers), and other community stakeholders (e.g., administrators). The requirements for the dyslexia endorsement may include training on the use of universal screeners for identification of students at risk for dyslexia, providing support and guidance to parents, and providing training/guidance to other educators and school personnel. Lastly, the PSC are to establish measures to assess fidelity of teacher training and implementation for teachers who receive a dyslexia endorsement [(Georgia General Assembly Legislation, 2019: SB48. Passed. Reg. Sess. 2019-2020. 20-2-208. Sect. 2 (a-c)].

Section 3 of SB 48 concerns certification of teachers in elementary and secondary education. Section 3

adds a new Code section, 20-2-208.1, which mandates standards for teacher preparation programs for elementary and secondary education to include instruction on the following: (a) the definition and characteristics of dyslexia and other disorders, (b) evidence based interventions and accommodations for students with characteristics of dyslexia and other disorders, and (c) core elements of a RTI framework to address reading, writing, mathematics, and behavior. The RTI framework should include universal screening, scientific, research-based interventions, progress monitoring of the effectiveness of interventions, and data-based decision-making procedures. The related data-based decision procedures are to include determining intervention effectiveness, determining if the intervention should continue, be altered, or discontinued, and if further evaluation of the student's needs should be conducted. Lastly, instruction should be provided on the application and implementation of RTI and dyslexia instructional practices in the classroom [(Georgia General Assembly Legislation, 2019: SB48. Passed. Reg. Sess. 2019-2020. 20-2-208.1. Sect. 3 (1-3)(A-D)(i-ii)(E)].

In addition, the GAPSC Rule 505-3-.14 Elementary Education (P-5) Program Requirements, Teaching of Reading stipulates education preparation programs prepare education professionals to meet the standards for the Reading Endorsement per GAPSC Rule 505-3-.01 (Georgia Professional Standards Commission, 2016: Rule 505-3-.14 (2) 9). This rule stipulates graduates of EPP elementary education programs in Georgia who meet the required standards graduate with a reading endorsement. It is probable that individuals with reading endorsements will be called upon to implement the universal screeners called for in SB 48. Therefore, education preparation programs will likely need to train teacher candidates to give screeners with fidelity and to interpret student data with reliability in their initial certification program of study.

Importantly, a theoretical understanding of the cause of learning disorders, assessment measures, and the required intervention lead to effective evidence- based intervention (Snowling & Hulme, 2012). Therefore, it would be advantageous for an EPP to provide instruction regarding the relationship among language, reading, and language impairments along a spectrum of reading disorders (see Figure 3); (Bishop & Snowling, 2004; Snowling & Hulme, 2012). The figure depicts the spectrum of reading disorders within the relationships of language. At the top of the figure, individuals with intact phonology, but poor language often are poor comprehenders. However, typical readers are individuals with both intact phonology and language. The

bottom half of the figure shows the dyslexia with comprehension issues as individuals with poor phonology and language. Individuals with poor phonology, but have intact language are depicted as persons with dyslexia. The severity of reading disorders follows on a continuum depending how the deficits with phonology and/or language (Bishop & Snowling, 2004; Snowling & Hulme, 2012).

Impact on Local Education Agencies

Early identification and intervention of educational concerns for dyslexia has been shown to play a crucial role in academic obtainment (Snowling & Hulme, 2012; Shaywitz et al., 2008). In order to meet mandates set forth by SB 48, such as early elementary schools screeners, LEA will need to start to plan now to ensure district curriculum and educator in-service are aligned to meet SB mandates. However, researchers and practioneers should take a critical eye when selecting commercially available programs for addressing the needs of individuals with dyslexia. Snowling and Hulme (2012) suggest a virtuous circle, where theory inform practice and vice versa. Each LEA will need to ensure individuals making decisions for effective programs have a solid understanding of principles of interventions, and which children are suitable for selected interventions (Snowling & Hulme, 2012). Effective instruction for early signs of dyslexia, per Snowling and Hulme (2012), has more than one targeted component. For children who may have poorly developed language, instruction should target oral language. Activities should focus on speaking, listening, and vocabulary instruction and training in oral narration. Other targeted areas should include phonemic awareness (segmenting and blending), letter-sound knowledge, and reading from texts at the students' appropriate level. Please see Snowling and Hulme (2012) for program details. For older students with concerns for dyslexia it is recommended evidence based intervention pedagogy be explicit, systematic, well structured, multisensory, and incorporate direct teaching, learning, (e.g., Berninger & Amtmann, 2003; Gabrieli, 2009; Graham et al., 2002; Moats, 2006; NRP, 2000; Schlesinger & Gray, 2017; Snowling & Hulme, 2011) and time (Snowling & Hulme, 2012) for students to consolidate what has been taught. In all situations, structured language concepts should be coupled with the practice of applying the concepts taught via authentic reading and writing (Adams, 1990; Pearson, 2004). Furthermore, our struggling readers and writers should receive instruction from highly qualified practitioners (Allington, 2013). To meet mandates, LEA will need to prepare so that classrooms have quality authentic literature, and direct educators to available trainings or

provide the trainings themselves from qualified individuals or organizations such as state colleges and universities of education.

Impact on teachers and classroom instruction

Typically it rests on the shoulders of general education teachers to notice and provide early intervention for reading concerns (Otaiba, et al., 2019). As time goes on other educators, such as speech pathologists (Lonergan & Duthie, 2018), reading specialists or dyslexia specialists (Otaiba et al., 2019), will be involved with addressing concerns for dyslexia. Teachers will need to be well informed on the structure of the English language, for example understanding the progression of early reading skills from phonological awareness to alphabetic principle, from phonics to word study skills (Otaiba et al., 2019). Teachers will need to be able to interpret and address student needs based on universal screener's results, provide differentiated instruction, implement scientifically-based literacy instruction for students with concerns for dyslexia, and understand and become involved in their district's RTI (Otaiba et al., 2019; Youman & Mather, 2018).

Conclusion

In conclusion, SB 48 has brought dyslexia and the teaching of reading to the forefront of education in Georgia. Reading is a complex process and extends beyond the act of teaching phonics (e.g., Adams, 1990, NRP 2000, Carlisle, 2000; Carlisle et al., 2011; Pearson, 2013). Senate Bill 48 aims to address components of reading that research has shown are essential for individuals with dyslexia (e.g., Gabrieli, 2009; Shaywitz et al., 2008; Torgesen et al., 2001). The tenets of the bill are aligned with dyslexia advocacy that has occurred over the last few years in the U.S. The bill defines dyslexia as a neurobiological-based disorder and provides definitions to encourage the use of dyslexia and dyslexia related terminology. Universal screening of kindergarten students, as well as kindergarten through grade three students who demonstrate concern for dyslexia based on LEA RTI is stipulated in the law. A three-year pilot study will be initiated in academic year 2020-2021, which will evaluate the effectiveness of early reading support for students with concerns for dyslexia. A component addressing professional learning opportunities is included in the dyslexia handbook that will be available December 1, 2019. In addition, the law sets forth the process for the PSC to establish standards for a dyslexia endorsement. There is no doubt that SB 48 will have an impact on EPP, LEA, and teachers in the classroom. The result is hoped to have a positive influence on literacy gains for students in Georgia with literacy

concerns.

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