

Dyslexia Primer for Social Work: Translational Research to Update Strengths-Based Practice, Advocacy, and Attitudes

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Abstract: *Dyslexia is a lifelong epigenetic neurobiological difference (neurodiversity) in brain formation and processing. Though highly prevalent, most people, including social workers, know little about dyslexia. Whereas dyslexia predicts common cognitive strengths and weaknesses, it is most often associated only with weaknesses, due to misinformation or a simple lack of information. As a result, pervasive myths (e.g., laziness, low IQ) drive beliefs, attitudes, and policies that contribute to disproportionately poorer educational, financial, justice system, and mental health outcomes for individuals with dyslexia – a cycle of externally and internally applied stigmas with significant practical effects. This analysis applies a person-in-environment conceptual framework to explain this cycle, as a step toward disrupting it. The analysis uses translational research methods, drawing from current science, to provide positive framing to dispel common stigmatizing myths and to foster strengths-based social work practice and advocacy by and for individuals with dyslexia.*

Keywords: *Dyslexia, special education, disability, stigma, neurodiversity, translational research*

In 2016, National Public Radio (NPR) aired a series on “unlocking dyslexia,” opening with a headline that captures an unsettling truth: “Millions have dyslexia, few understand it” (Emanuel, 2016). Dyslexia affects millions of lives but remains poorly identified and understood by many of those affected – and by many professionals positioned to make a difference, including social workers. Dyslexia, like other learning disabilities, historically has been siloed within the academic and professional purviews of medicine, education, and psychology. This compartmentalization has had the unintended consequence of limiting the dissemination of accurate knowledge and narrowing the framework within which dyslexia is understood and treated across modern life, from our educational and justice systems to the workplace and mass media. Our culture perpetuates reductive and biased misconceptions of dyslexia, creating a vicious cycle of externally and internally applied harmful stigmas. This environment has produced disproportionately poorer outcomes for individuals with dyslexia. According to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) of the American Psychiatric Association (APA, 2013), the functional consequences of Specific Learning Disorders – dyslexia being the most prevalent – include disproportionately lower academic achievement, employment, and income, with disproportionately higher comorbidity of mental health challenges and suicidality. Too often these outcomes are seen as a direct consequence of dyslexia rather than as a consequence of stigmatized interactions with an uninformed public.

Social work is uniquely positioned to address these misconceptions and promote positive outcomes through application of a person-in-environment (PIE) approach and emphasis on strengths (Council on Social Work Education Disability-Competent Care

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Curriculum Workgroup [CSWE], 2018). Disability issues reside at the core of social justice, equity, and inclusion. By definition, “disability” describes how a person, because of inherent characteristics, is systematically challenged in (if not precluded from) physical, social, financial, or civic dimensions of life (CSWE, 2018). Disability falls on a continuum, and like other aspects of diverse identity characteristics that are too often linked to inequity and social injustice, the meaning and impacts of disability emerge from the interplay between a person and the environmental forces surrounding them, which can be either constricting or empowering (Bean & Kreck, 2012; CSWE, 2018; Nalavany et al., 2015). Given social work’s tools, training, and values, we can and should intervene on behalf of this population, but are largely unprepared to do so.

This article aims to bring light to this oversight within social work, applying translational research methods to bring knowledge from neurobiology and other academic/professional fields, to begin to build context and understanding for enhanced social work education and practice. This work is predicated upon, and illustrative of, the applicability of PIE to dyslexia, illuminating how the environment creates disability (social model of disability, Gilson & Depoy, 2002), thus contributing to the profession’s general resources on disabilities. The analysis is intended to transfer knowledge across disciplinary silos to social work practitioners drawing from current science and relevant literature to eliminate the harms of myths and misinformation and to reframe dyslexia and its associated strengths. The latter is not only important for strengths-based social work direct practice, but is also key in micro-macro intervention, by and for individuals with dyslexia. This article, therefore, has implications for advancing micro through macro practice, social work education, and the “public realm” (Ogilvie et al., 2009) of knowledge, attitudes, and practices regarding people with dyslexia.

After stipulating the purpose and approach for the analysis, I discuss and analyze the current dyslexia landscape, signs, and interventions, laying out the negative person-environment cycle. I then highlight a current shortcoming within social work, namely that while expertise on dyslexia is clearly indicated as integral to our practice, literature and educational resources are conspicuously sparse. Finally, I employ translational research to highlight important knowledge generated by other professions which dispels many misconceptions about dyslexia and provides a foundation for a strengths-based approach. The paper concludes by highlighting existing multidisciplinary strengths-based research and advocacy that serves as an entry and launch point for social work.

Purpose and Approach

The purpose of this analysis is to improve opportunities and outcomes for individuals with dyslexia by sensitizing social work practitioners to available, evidence-based research literature and practices. The paper aims to educate caseworkers, counselors, and advocates about the need to provide strengths-based framing and support to those with dyslexia (influencing the mezzo-macro/environmental-level health pathway, see Ogilvie et al., 2009). An intended result is that those with dyslexia, in turn, will be better empowered to locate resources and support, and to gain insight into their brain function as grounds for self-advocacy and self-esteem (influencing the micro/individual-level health pathway). A

secondary purpose is to contribute to the social work profession's disability practice literature and educational resources, more broadly. Dyslexia is a striking case-study for illuminating the importance of a PIE approach to any level of practice supporting those with disabilities.

Consistent with these purposes, the article highlights the urgent need for social work to enter the fray regarding dyslexia and other learning disabilities. While laboratory bench, medical, and psychoneurological knowledge bases on dyslexia will continue to grow, the biggest obstacles to better outcomes for those with dyslexia currently are societal attitudes, stigma, and entrenched systematic and differential detrimental norms and practices (Shaywitz, 2017; Shaywitz & Shaywitz, 2020). These must be addressed with education and advocacy, and – along with the broader overarching commitment to eradicating intolerance and enhancing diversity and social justice – are tasks social workers are well-suited to undertake.

Translational research is a useful, recent, multidisciplinary field that seeks to leverage disciplinary knowledge and methods by working across traditional knowledge silos in laboratory bench, social, and population sciences, to improve interventions and outcomes (Austin, 2018), including mitigating implicit biases (Van Schalkwyk & Harris, 2018). Ogilvie et al. (2009) highlight that translational public health research encompasses the “public realm,” and the importance that media, culture, and public opinion have in improving health through individual and environmental pathways. Others assert that the use of stories and persuasion in translational science can advance better policy (Cairney & Oliver, 2017). Challenging pervasive myths with factual education is a common strategy to counter the stigmatization of specific identities, and based on analyses of the stigma associated with mental illness, can help to change the public's stigmatizing attitudes (Corrigan et al., 2012; National Academies of Sciences, Engineering, & Medicine, 2016). Based on their survey data, Nalavany et al. (2015) specifically argue that a supportive family who actively sees beyond the stigmatized identity can play a critical role in the self-esteem and well-being of those with dyslexia.

A central claim of this paper is that translational research can itself serve as an intervention, and the sharing of knowledge drawn from other disciplines (dissemination as methods) is offered as an intervention. Since attitudes and perceptions directly impact interpersonal interactions on micro-macro levels, translational research that corrects misinformation and improves and expands knowledge can be an intervention aimed at attitudinal change and empowerment outcomes (Ogilvie et al., 2009). In the case of dyslexia, there is a clear need for targeted educational messaging to improve knowledge and thereby change attitudes and behaviors. A humanities lens may frame this work consciously as a performative act (Butler, 2009) toward greater social justice in its direct challenge of pervasive and stigmatizing myths (Corrigan et al., 2012; Rössler, 2016).

Analysis and Discussion

Dyslexia: The Current Landscape

The environment for individuals with dyslexia is characterized by confusion and a

negative feedback loop of externally- and internally-applied stigmas and misinformation. Dyslexia is commonly misunderstood or missed altogether. Messaging reinforces cognitive deficiency, and well-intended solutions focus on weaknesses of dyslexic brain differences without acknowledging the related strengths. Worse, because of a lack of appropriate knowledge, professionals often proceed unwittingly from misconceptions, interpreting dyslexic traits as character flaws or innate inadequacies (e.g., laziness, low intelligence, poor eye function). This reality should raise alarm and serve as a call to action for social workers, as they are likely among professionals most likely to encounter unidentified dyslexia across contexts (including education drop-outs, mental health, unemployed, and prison populations); social workers should be educated and trained to disrupt the cycle.

Current prevailing definitions of dyslexia identify it as a biological learning disability and identify neurobiological deficiencies that correlate with poor learning performance. The DSM-5 folds dyslexia within the descriptive text of Specific Learning Disorders (rather than as a disorder itself), within the broader chapter on Neurodevelopmental Disorders (APA, 2013). According to the DSM-5, 5-15% of school-aged children across cultures have a Specific Learning Disorder, summarized as persistent deficits in accurate or efficient ability to perceive or process input, despite adequate instruction, which should be characterized by severity level (mild, moderate or severe). The DSM states that while Specific Learning Disorders are lifelong, the clinical course is influenced by “the task demands of the environment, the range and severity of the individual’s learning difficulties, and the individual’s learning abilities, comorbidity, and the available support systems and intervention” (APA, 2013, p. 73). The DSM-5 cites risk factors of low birthweight, prenatal nicotine exposure, and heritable genetics, while social or emotional support can be protective for mental health (APA, 2013).

The International Dyslexia Association (IDA) noted in 2002 that dyslexia involves “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,” (para. 1) and identified secondary consequences that “may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge,” (para. 1). The British Dyslexia Association (n.d.) observes that “[i]n reality, dyslexia can affect memory, organization, time-keeping, concentration, multi-tasking and communication. All impact on everyday life” (para. 1). While patterns among dyslexia emerge, each individual is different, and a person’s abilities and challenges fall on continuums (Shaywitz & Shaywitz, 2020).

While it is assumed that dyslexia is underdiagnosed, and complete information is unavailable (Horowitz et al., 2017), experts believe that 5-17% of the population experience dyslexia (Ozernov-Palchik et al., 2016). It has been estimated that about 4% of the population has severe dyslexia (British Dyslexia Association, 2015) and about 2-5% of the population is both intellectually gifted and dyslexic, termed “twice exceptional” or “2e” (IDA & Gilger, 2013, para. 1).

Despite definitions that technically identify dyslexia as brain variance, dyslexia is culturally stigmatized as a mental deficiency and/or character flaw. Survey data from the National Center for Learning Disabilities (NCLD) indicate some “43% of parents say that

they wouldn't want others to know if their child had a learning disability" (Horowitz et al., 2017, p. 1). And, in a national survey administered to a representative sample of 1,000 U.S. adults, 80% of the general public equated learning disabilities with intellectual disability (Cortiella & Horowitz, 2014), despite clearly-established refuting evidence (Tanaka et al., 2011). Among those surveyed, that belief was held by 81% of teachers (Cortiella & Horowitz, 2014) and 58% of school administrators. Fifty-one percent of all respondents attributed learning disabilities to laziness, and 55% of respondents to NCLD's survey believed learning disabilities could be corrected with glasses (Cortiella & Horowitz, 2014).

Lack of self-awareness compounds these misconceptions. Even as a majority of educators and administrators negatively misinterpret dyslexia and other learning disabilities, a majority also regard themselves as appropriately trained to serve these populations: 80% of educators felt competent to teach those with a learning disability (Cortiella & Horowitz, 2014). In describing her in-depth qualitative research on the academic identity development of youth with social and learning disabilities, Baines (2014) observed:

They were singled out as different. While this social positioning was often unintentional, these everyday interactions communicated low expectations, restricted opportunities, and revealed academic stereotypes, contributing to the damage to their sense of self... These practices, which often are taken for granted as a natural part of schooling, confront students with discouraging and stigmatizing messages about their intelligence, impacting their identities in the long term. In particular, it is the unconscious nature of these practices and the ways they are reproduced by teachers and students themselves that is most harmful to youth. (pp. 2-3)

Baines also highlights a disconnect between academic awareness and educational application: even though conversations about the harms of children being dubbed "lazy" or "unmotivated" occur at academic conferences, such understanding fails to alter classroom norms. Fassett and Morella (2008) illuminate parallel problems facing those with dyslexia in higher education, addressing the conundrums of navigating "coming out" (p. 147) as dyslexic within a "culture of suspicion" (p. 142), wherein one's capabilities, needs, and rights to participation are questioned and (dis)ability is constructed as a stigmatized binary of abled or disabled.

There is clearly a disconnect between contemporary evidence-based understanding of dyslexia, the learning needs of persons with dyslexia, and the public's and general educators' understanding of dyslexia. People with dyslexia directly suffer the multifaceted consequences of these misconceptions, though the toll ultimately extends throughout society (Sherman, 2004). Unfortunately, this disconnect results in frequent dismissal and misinterpretations of signs of dyslexia, resulting in delayed, inadequate, or wholly absent interventions. The next section discusses current data on signs and interventions. Subsequent sections highlight and explain relevant, contemporary, evidence-based information (translational research) and strengths-based approaches which, once adopted, can improve outcomes.

Signs and Interventions

Manifestations of developmental dyslexia in youth include issues in recognizing letters, words, and rhymes; inability to connect letters with sounds or phonemes; slow and inaccurate reading, word finding, word recall; and problems with spelling, organization, and written expression (Eide & Eide, 2011; NICHD, 2018b). The Yale Center for Dyslexia & Creativity (2017a) explains that, in addition to impacting reading,

Dyslexia is a difficulty appreciating the individual sounds in spoken language. It affects a person's ability to rapidly retrieve the word he or she wants to say, to isolate the sounds within a spoken word and then to attach the appropriate letter to the sound. (p. 1)

Many individuals with dyslexia have poor working memory, manifesting in difficulty with executive function tasks such as following directions, organization, sequencing, planning, and timing (IDA & Berg, 2019). Because dyslexia is a “glitch within the language system, at the level of the phonological module,” (p. 51) individuals with dyslexia are challenged in segmenting out the phonemes of words, resulting in errors in reading or generating spoken or written language (e.g., “humanity” for “humility; Shaywitz & Shaywitz, 2020). Dyslexia is characterized by a “spiky” psychometric profile (Stein, 2017, p. 318), meaning the group is defined by marked peaks and troughs in performance across measures.

Individuals with dyslexia may become identified through scholastic failures, or they may do well compared to peers, based on extraordinary effort and compensation (APA, 2013). There is considerably less research on the manifestations, impacts, and needs of adults with dyslexia (Frith, 2013) who run the gamut of compensating and doing well to chronically struggling. Because of practice trends, older adults are less likely than those born more recently to have been diagnosed with dyslexia. Even those who have been diagnosed may be reluctant, because of shame and prior related trauma, to disclose such a diagnosis. Moody (2014) suggests that adults with dyslexia may read slowly, but struggle most with phonology, working memory, and visual processing; they may present to a primary care provider with work stress, “low self-esteem, lack of confidence, feeling of shame and embarrassment, inability to study or work efficiently, panic at the thought of going to the office, poor concentration, memory lapses, periods of going blank in a conversations, and difficulty relating to people” (p. 252). The National Institute of Child Health and Human Development (NICHD, 2018a) recommends that adults manage their dyslexia through self-advocacy, assuring supportive environments, and leveraging assistive technology.

The knowledge gaps and misconceptions have created a poor environment for individuals with dyslexia, where defeating stigmas are imposed and reinforced while strengths are overlooked. As a result, dyslexia is correlated with poor outcomes and consequences across lifespans (APA, 2013). For example, it is estimated that nearly half (49%) of those in prison have dyslexia (Moody et al., 2000). People with learning disabilities are more likely to drop out of school, be under- or unemployed (APA, 2013), live in poverty, and have trouble with the law (Cortiella & Horowitz, 2014). Individuals

with dyslexia are six times more likely than their peers to experience physical child abuse (Fuller-Thomson & Hooper, 2015). They disproportionately experience psychological distress, have poorer mental health (predominantly depression, anxiety, suicidality), and frequently have co-occurring additional neurodevelopmental disorders (e.g., other learning disabilities, ADHD, autism; APA, 2013; Ijeoma & Ugwu, 2019).

Based on decades of research at the Yale Center for Dyslexia and Creativity Lab, Shaywitz and Shaywitz (2020) assert “it is rare to see a dyslexic who doesn’t also have anxiety or, for that matter, ADHD” (p. 419). Dyslexia is highly associated with stigma and shame (Leitão et al., 2017; Nalavany et al., 2015; Shaywitz & Shaywitz, 2020). Because it is brain-based, mental illness tends to be internalized, or generalized as identity (Rössler, 2016). This is also true for dyslexics.

While dyslexia is life-long and cannot be cured, early interventions in instruction, supports, and self-advocacy can ameliorate the personal and societal toll (Haft et al., 2016; Sherman, 2004). Early recognition and intervention with evidence-based reading instruction, accommodations and/or modifications, and support for positive self-esteem and mental health can alter the primary and secondary impacts of dyslexia (Haft et al., 2016; NICHD Office of Communications & Miller, 2017). As a starting place, the NCLD (2020b) has created an all-ages, online symptom screening checklist. There are junctures when the brain may be more plastic, and best outcomes take advantage of these, but evidence suggests the underlying dyslexic brain organization remains atypical across the lifespan, even with well-timed intervention (Danelli et al., 2017; Shaywitz & Shaywitz, 2020).

Receiving an appropriate diagnosis of dyslexia and sharing information about its true nature is therapeutic for many, and necessary for building self-advocacy and self-esteem (Shaywitz & Shaywitz, 2020). Early and documented intervention for potential learning issues is important to leverage windows of neuroplasticity, gain effective compensatory instruction, and access rightful and life-altering aids and legal protections (afforded in the United States, through the Individuals with Disabilities Education Act (IDEA, 2004), Section 504 of the Rehabilitation Act of 1973, or the Americans with Disabilities Act of 1990 - Amendments Act of 2008). Typical school and work accommodations for dyslexia would include: extra time (to compensate for the additional neurological steps), assistive technology (hardware and software that aids with reading, note-taking, organizing writing, and spelling), and modifications (e.g., customized expectations, processes, or environments; alternative content or testing, altered job duties, and adjusted schedules or work space; IDA & White, 2018; U.S. Equal Employment Opportunity Commission, n.d.).

However, such intervention is happening neither systematically nor uniformly. According to Shaywitz and Shaywitz (2020) “our *knowledge gap is closing*; the frustrating news is that it has been replaced by *an action gap* – that is, we, especially schools and policymakers, are behind in translating the existing scientific progress into policy and practice” (p. 86). Stated differently, there is a “research-practice gap,” (Mallonee et al., 2006, p. 357), or an “evidence-practice gap” (Kristensen et al., 2016, p. 1). In other words, knowledge about dyslexia exists but currently is missed or underutilized in training, practice, and policy.

Implications for Social Work

The brain variances associated with dyslexia produce significant strengths and upsides, some of which are particularly well-suited for modern world challenges but are ignored or misconstrued, and thus are under-valued and under-developed within the current negative cycle. For example, it is now clear that dyslexia is a language-reading issue, not a thinking impairment, and Shaywitz and Shaywitz (2020) effectively argue that specificity about dyslexia, rather than using the broader “Specific Learning Disability,” is important for proper understanding and micro-macro interventions.

Dyslexia is a prime example of disability born of PIE interplay, a framing promoted by the CSWE Disabilities Workgroup (CSWE, 2018, p. 4). Social workers should empower individuals experiencing disability while also improving formal and informal social systems for better inclusivity, health, and social justice and equity outcomes. Modern culture, which requires visual reading and writing for participation and competency, is generally inhospitable to the physical neurobiological characteristics of individuals with dyslexia, for whom these tasks are challenging and resource-intensive, if not impossible. The person with dyslexia is not inherently flawed; they are simply at a disadvantage in meeting the select but privileged expectations of their environments. A person with dyslexia may be functionally disabled because of their environment.

Yet, social work research and education has largely overlooked dyslexia, despite the facts that learning disabilities are among the most prevalent of disabilities (NICHD Office of Communications & Miller, 2017) and that people with dyslexia are more likely to have intersections leading to clinical, agency, or governmental involvement. Social work literature reflects a dearth of material on dyslexia, indicating an important knowledge gap among social workers. A keyword search of “dyslexia” in the *Social Work and Social Service Abstracts* databases on November 10, 2019, produced only 31 unique results within the discipline’s primary literature.

Prevalence statistics and correlations suggest social workers frequently encounter people with dyslexia in all practice settings. Dyslexia assessment should be a common element of direct practice, given the widely acknowledged concerns within other professional literatures about the prevalence, inaccurate diagnosis, intervention of dyslexia and dire outcomes, and comorbidities common to individuals with dyslexia. An obvious recommendation is that direct practitioners should consider that dyslexia may be a primary or secondary factor in a client’s presenting issues.

There is a recognized general lack of training within the social work profession about competency with disabilities, and by extension, a deficit within the ranks of practicing social workers. Analysis of courses being offered by the 2008 *U.S. News and World Report’s* top-25 social work programs found that 20% of these programs had no courses in which disability content appeared in either the course title or description (Bean & Kreck, 2012). Disability content was limited in virtually all programs, appearing in the description of only 5% of the courses surveyed, and in only 1% of the titles of the 1,620 courses reviewed. While disability content should be assessed and enhanced within institutional practices and implicit social work curricula (Kim & Sellmaier, 2019), the CSWE

Disabilities Workgroup highlights the imperative for more literature and educational resources, framed using PIE, if social workers are to become competent with disability in their practice (CSWE, 2018). Finally, irrespective of practice setting, sound social work praxis demands that practitioners work to advance social justice through reflexively checking their own biases and behaviors, and fostering similar work among individuals, communities, organizations, and cultures (Garner, 2011).

Dyslexia Translational Research: What Is Known

Translational research provides useful knowledge for social workers. While professional and academic literature tends to pathologize dyslexic traits, research and advocacy from different corners have illuminated a more nuanced, balanced understanding of dyslexia that should be drawn upon. For example, educational neuroscience has contributed significantly to creating a knowledge base that dispels common misconceptions about dyslexia (IDA et al., 2014; NCLD, 2020a). Educational neuroscience emerged in the 1990s to join speech and language therapists, cognitive psychologists, special education specialists, and other allied professionals in striving to understand and intervene with this population. Neuroscience, which studies the anatomy, physiology, and mechanics of the brain, has helped clarify and concretize specific attributes of dyslexia.

In neurobiological terms, dyslexia is a heritable (epigenetic) condition marked by alterations in brain organization and processing that impacts reading (Caverzasi et al., 2018; Ozernov-Palchik et al., 2016). Dyslexia functions independently of intelligence quotient (Ferrer et al., 2010; Tanaka et al., 2011) or eyesight (Handler et al., 2011). For the typical reader, written and aural words trigger the same regions of the brain, thus words and their symbols become overlaid and synonymous, which is conducive to fluent and automatic word comprehension. Conversely, the dyslexic brain employs different brain regions to process written and aural language; thus, reading and writing involve more structures, time, and purposeful effort – in short, more resources (Shaywitz & Shaywitz, 2020).

Dyslexia is a language-based disorder, believed to have multi-epigenetic etiology (i.e., varying risk factors and causes) that result in structural and functional uniquenesses (NICHD Office of Communications & Miller, 2017). Preverbal infants of those with dyslexia show an atypical brain activation on EEGs (Molfese, 2000), strongly suggesting an innate, organic manifestation of neurodiversity. Based on brain imaging of distance and density of modular cortical circuitry found in those with the conditions, some experts are putting dyslexia and autism spectrum disorder on opposite sides of a bell-curve continuum (Williams & Casanova, 2009). It is estimated that one in five people may have some degree of dyslexic style brain organization and function (Shaywitz & Shaywitz, 2020), although prevalence estimates are impacted by characteristics of primary language, definitional variation, and diagnostic challenges (Dyslexia International, 2018).

Dr. Sally Shaywitz's (2003) groundbreaking work, the "Sea of Strengths Model of Dyslexia," describes the higher order cognitive abilities that commonly occur in some mix alongside the cognitive profile weaknesses associated with dyslexia. Dyslexic thinkers tend to be top-down, rather than bottom-up thinkers (thus big-picture and non-linear). Those

with dyslexia tend to excel in holistic understanding and aptitude in “reasoning, problem solving, concept formation, comprehension, critical thinking, general knowledge, and vocabulary” (Shaywitz, 2003, p. 58). The Yale Center for Dyslexia and Creativity (2017b) advocates that “while those with dyslexia are slow readers, they also, paradoxically, are often very fast and creative thinkers...We should recognize and embrace those with dyslexia as often among the most intelligent and creative members of society” (pp. 2-3). Indeed, according to survey results, roughly 35% of successful entrepreneurs are dyslexic (Logan, 2009), as are some of the most brilliant and successful people (according to IDA, 2019: Thomas Edison, Stephen Spielberg, F. Scott Fitzgerald and Charles Schwab; according to Made by Dyslexia, 2019: Agatha Christie, Jamie Oliver, Richard Branson, Albert Einstein, Alexander Graham Bell, Henry Ford, and the Wright brothers).

Toward a Strengths-Based Perspective of Dyslexia

The CSWE Disabilities Workgroup (2018) suggests PIE balances support and empowerment of the individual experiencing disability alongside efforts to alter social determinants of health (such as collective of attitudes, behaviors, and policies). Applied to dyslexia, an individual with dyslexia is not inherently flawed because they have variances in abilities, but they might be quite disabled because of rigid and narrow demands of their environment. The impact of being dyslexic is a function of not only the individual’s unique profile, but of the social (e.g., attitudes, biases) and structural (e.g., school, work and civic policies; characteristics of their surrounding language) environment in which they are located.

Dominant American culture privileges legacy, reified roots of education such as visual reading, writing and arithmetic, which disproportionately tax dyslexic brain resources and underutilize dyslexic strengths. Just as adverse effects of dyslexia vary by specific language, dyslexic brains have comparative advantages within cultures where oral storytelling, physical navigating, or analogy are of core value and importance and hence, culturally privileged. The fact that the struggle and disability of dyslexia, on a population basis, is correlated to characteristics and orthography of a given language (Dyslexia International, 2018) – meaning a given individual with dyslexia would be more or less challenged based on their mother tongue – establishes that at the most base level, dyslexia is a disability because of PIE context.

Applying a PIE approach in education and practice means that steps toward mediating or eradicating the experience of disability also fall across the micro-macro spectrum (inclusive of changes on an individual level through collectively held attitudes, behaviors, and policies). Thus, consistent with translational research and the CSWE Disabilities Workgroup premise, this present analysis is also a consciously-performed act aimed at expanding knowledge, and thereby altering general beliefs, attitudes, and stigma about dyslexia and environmental dimensions of disability more broadly. Toward that end, there are existing movements, discrete knowledge bases, and examples of strengths-based approaches, highlighted below, that social workers can draw upon both to inform their own micro-macro practice with those with dyslexia and, more generally, as a basis for competent social work with people experiencing other disabilities.

The concept of neurodiversity is an accurate and powerful reframe of the current pathologized concept of dyslexia. A social movement which emerged in the late 1980s, neurodiversity asserts that biodiversity of neurological development is normal and valuable within a population (Sherman, 2004). Neurodiversity challenges the deficit, pathologized conceptual model that constructs those deemed not normal (neurodivergent versus neurotypical) as flawed, and in need of fixing, cure, or prevention (Nicolaidis, 2012). The neurodiversity social movement affirms the complexity of cognitive strengths and challenges a person might possess, and positions neurodiversity alongside equity and social justice issues related to gender, race, ethnicity, and sexual orientation (Nicolaidis, 2012; Robertson, 2010).

Physicians Brock and Fernet Eide, dyslexia specialists, marshalled their research and clinical expertise to provide an evidence- and strengths-based framework that helps illuminate dyslexia for a general audience. Eide and Eide (2011) propose the organization and anatomy of a dyslexic brain are wired for broad, lateral thinking and have strengths that come with cognitive trade-offs. Their 2011 book, *The Dyslexic Advantage*, develops an understanding of dyslexia as a “pattern of brain organization and processing that supports wider thinking and cognitive gains, in direct trade-off of fine-detail processing” (p. 171). Eide and Eide present the synthesis of aptitudes characteristic of dyslexics as “Dyslexic M-I-N-D Strengths” (see Table 1). Dyslexic MIND Strengths is a powerful summation of corresponding dyslexia strengths and weaknesses that can be an essential starting point for social work education and practice.

There also have been fruitful contributions from advocacy and outreach entities to distill and conceptualize dyslexia in ways that emphasize strengths and disrupt common misconceptions. For example, “Made by Dyslexia” is a global British charity led by and for individuals with dyslexia that provides an articulation and framing of common strengths. A 2017 Made by Dyslexia public education campaign parses dyslexic strengths within the areas of: “*Visualising*: moving, making, and inventing; *Imagining*: creating and interpreting; *Communicating*: explaining and storytelling; *Reasoning*: simplifying, analysing, deciding, and visioning; *Connecting*: understanding-self, understanding-others, influencing and empathizing; *Exploring*: leaning, digging, energizing, and doing,” (emphasis added, Made by Dyslexia & Griggs, 2017, p. 12). This compilation echoes the contributions of Shaywitz (2003) and Eide and Eide (2011) and highlights the inquisitive and social nature of many individuals with dyslexia. Made by Dyslexia’s framework also helps differentiate dyslexic characteristics from other neurological and developmental disabilities in that dyslexics often have strong social skills.

Another example comes from select universities. The University of Michigan’s (Petrova, 2019) student support services lists ten dyslexic strengths: “strong memory for stories, excellent puzzle-solving skills, brilliant spatial reasoning, great conversationalists, tremendous empathizers, wonderfully imaginative, abstract thinkers, think[ing] outside the box, critical thinkers, and astutely analyze[ing] stories told or read to them.” Stanford University’s Student Affairs website (n.d.) affirms that: “Rather than try to change the way individuals with learning disabilities learn, we are beginning to change environments so that all individuals can learn [...] to adopt a strengths-based model that embraces the whole person” (para. 5).

Table 1. *M-I-N-D Strengths and Their Corresponding Trade-Offs**

Dyslexic-Style Brain Strength	Strength Manifested	Corresponding Trade-Off
Material Reasoning (M): “Three-dimensional, visual, spatial, & navigational abilities.”	<ul style="list-style-type: none"> • Important in fields such as engineering, surgery, art, & IT. • Creativity, particularly in understanding of movement, shape, & force. 	<ul style="list-style-type: none"> • May compete for brain regions supporting language processing. • Expressive difficulties manifested as slow responses, symbol reversals, & subtle language challenges.
Interconnected Reasoning (I): Recognizing relationships, shifting perspectives/disciplinary lens, & global thinking.	<ul style="list-style-type: none"> • Important in fields such as medicine, software design, acting, & invention. • Broad, “creative, perceptive, interdisciplinary, & recombinatory thinking.” • Recognition of patterns, relationships among concepts & content, & the gist or synthesis among & across things. 	<ul style="list-style-type: none"> • Challenges in quick, accurate, & efficient fine-detail processing used in decoding & encoding written language or in declarative memory. • Challenges in narrowing & linearizing thinking to allow other to follow train of thought. • Challenges in organization of physical files.
Narrative Reasoning (N): Personal, “episodic memory, storytelling, & scene creation”	<ul style="list-style-type: none"> • Important in fields such as teaching, counseling, politics, sales, & writing. • Learning, recall, reasoning & expression focused on a specific, scene-based instance (i.e., thinking in stories). • Wired to note differences from the norm or to observe less-obvious connections among things. 	<ul style="list-style-type: none"> • May not function as well with fact-nugget processing of semantic memory, which is prioritized in the current education system.
Dynamic Reasoning (D): An intuitive sense of complex systems & an ability to retain & manipulate discrete episodic simulation to anticipate real-world circumstances—a combination of “I” & N” strengths.	<ul style="list-style-type: none"> • Important in fields such as economics, organizational leadership, farming, policy, & business. • Wired to track the gestalt, while retaining discrete known & unknown variables to identify a best fit. • Iterative, circular default neuro network processes that occur outside consciousness & generate leaps of insight rather than systematically linear reasoning. 	<ul style="list-style-type: none"> • Same trade-offs as “I” & “N” strengths. • In addition, D strengths are fostered by a relaxed mental & emotional state, but inhibited by focused, purposeful effort & pressure. • May appear like daydreaming to some. • May prove elusive on the spot or require backward reconstruction of a linear path for communication to certain audiences.

*Table adapted from Eide, Dyslexic MIND Strengths [poster], 2019 and Eide & Eide, 2011.

Another contribution to normalizing dyslexic neurodiversity, and showcasing dyslexic strengths, comes from a 2018 Ernst and Young study (commissioned by Made By Dyslexia), which concluded that hard-wired strengths common among dyslexics make them particularly well-adapted to meet the demands of the evolving workforce. Ernst and Young (2018) analyzed and mapped the World Economic Forum's (2016) 35 core work-related skills onto the survey-based identified strengths common among dyslexia. The report concludes that, amid increasing job demands for "flexible skills in a highly collaborative and interdisciplinary environment," individuals with dyslexia have "much to offer but are still a largely untapped and misunderstood talent pool" (p. 5). Specifically, the report concludes that people with dyslexia can offer alternative perspectives and creative problem-solving, frequently performing as: "**Exceptional:** Visualization, Creativity, Cognitive Flexibility, Active Learning; **Very Strong:** Logical Reasoning, Systems Analysis, Complex Problem Solving, Written Expression, Programming; [and] **Strong:** Problem Sensitivity, Active Listening, Technology and User Experiences Design" (punctuation added to original bi-level bullet-point list, p. 26). A *Harvard Business Review* article (Austin & Pisano, 2017) lauds neurodiversity as a "competitive advantage," integral in innovation, and now actively sought among many premier companies such as Microsoft, Hewlett Packard, and IBM.

As reflected in these examples, the enhanced circuitry of a brain with dyslexic variance makes it strongly suited for a number of high-level mental tasks, even if it is not optimized for written language tasks. Of course, each individual is unique; however, there are patterns of strengths among those with dyslexia which could and should provide the basis of self-esteem, coping, and advocacy skill-building. Further, understanding and normalizing dyslexic strengths can be used by professionals and allies to inform empowerment practice and advocacy.

Conclusions

This analysis employed translational research methods to illuminate dyslexia to accomplish multiple ends. A main goal is to educate and sensitize social work practitioners for evidence- and strengths-based practice with people with dyslexia. It is also hoped that this article become a resource useful as a basis for advocacy, understanding, and destigmatization of dyslexia among those with dyslexia, their family members, and citizens of conscience. Ideally, this work will galvanize greater attention and further research on dyslexia within social work and strengthen the training and practice of social workers among those experiencing any disability.

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