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RESEARCH ADVISORY

Dyslexia

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Evidence does not support what many take to be indicators or predictors of dyslexia, including clumsiness, fine motor problems, attention deficits, creativity, or handedness.

Both informal and professional discussions about dyslexia often reflect emotional, conceptual, and economic commitments, and they are often not well informed by research. Our beliefs and practices should be grounded by what emerges from the available evidence (Elliott & Grigorenko, 2014; Vellutino, 1979; Washburn, Joshi, & Binks-Cantrell, 2011). Although there are contradictions and uncertainties in the research on dyslexia, there are also important convergences.

First, some children, both boys and girls, have more difficulty than others in learning to read and write regardless of their levels of intelligence or creativity. When beginning literacy instruction is engaging and responsive to children's needs, however, the percentage of school children having continuing difficulty is small (Vellutino et al., 1996; Vellutino, Scanlon, & Lyon, 2000).

Second, the nature and causes of dyslexia, and even the utility of the concept, are still under investigation. Although genetics and neurology appear to play a role in reading difficulties, environment and instruction moderate that role. Evidence does *not* support what many take to be indicators or predictors of dyslexia, including clumsiness, fine motor problems, attention deficits, creativity, or handedness (Barth et al., 2010; Elliott & Grigorenko, 2014; Fletcher et al., 2011; Ritchie, Luciano, Hansell, Wright, & Bates, 2013).

Third, dyslexia, or severe reading difficulties, do *not* result from visual problems producing letter and word reversals (Vellutino, 1979). Most children confuse similar-looking letters and words while learning to read. This is partly because some letters are similar in appearance and partly because most objects children learn about are called by the same name no matter how they are oriented in space—a chair is a chair even when it is turned upside down. Letters and words are not like that—a *p* is a *p* in one orientation only. Children need to learn that orientation matters when it comes to print. Children sometimes confuse whole words (such as *was* and *saw*) because they look alike except for the order of the letters. In their early learning, children often do not use the sequence of letter-sounds in the word to help them settle to the word's identity.

Many researchers accept the idea that dyslexia/severe reading difficulties results from difficulties in analyzing and manipulating sounds in words (Vellutino, Fletcher, Snowling, &

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Scanlon, 2004). These difficulties, however, do not of themselves allow us to distinguish readers with dyslexia from other readers encountering difficulties, or from younger readers with the same level of reading proficiency. Errors in reading and spelling made by children classified as dyslexic are not reliably different from those of younger children who are not classified as dyslexic. Rather, evidence suggests that readers with similar levels of competence make similar kinds of errors. This does not suggest a greater incidence of dyslexia, but instead that some difficulties in learning to work with sounds are normal.

One disconcerting outcome of the challenges involved in making distinctions is that estimates of the incidence of dyslexia vary widely. In spite of that, research indicates that most students who experience literacy problems in their early years do not ultimately have long-term difficulties when appropriate instruction and intervention are provided. In fact, interventions that are appropriately responsive to individual needs have been shown to reduce the number of children with continuing difficulties in reading to below 2% of the population (Vellutino et al., 2000).

As yet, there is no certifiably best method for teaching children who experience reading difficulty (Mathes et al., 2005). For instance, research does *not* support the common belief that Orton-Gillingham-based approaches are necessary for students classified as dyslexic (Ritchey & Goeke, 2007; Turner, 2008; Vaughn & Linan-Thompson, 2003). Reviews of research focusing solely on decoding interventions have shown either small to moderate or variable effects that rarely persist over time, and little to no effects on more global reading skills. Rather, students classified as dyslexic have varying strengths and challenges, and teaching them is too complex a task for a scripted, one-size-fits-all program (Coyne et al., 2013; Phillips & Smith, 1997; Simmons, 2015). Optimal instruction calls for teachers' professional expertise and responsiveness, and for the freedom to act on the basis of that professionalism.

Some have advocated for an assessment process that determines who should and should not be classified as dyslexic, but this process has been shown to be highly variable across states and districts in the United States, of questionable validity, and too often resulting in empirically unsupported, one-size-fits-all program recommendations. Assessment that gives us

data on how to support instruction that is responsive to individuals' needs and comprehensive in scope is more useful in meeting students' needs (Vellutino et al., 2004). So it may be that not using the term *dyslexia* would, on balance, benefit the teaching/learning process: Professionals' attention would be turned away from an arbitrary cut-off point for making decisions about a learner and toward a focus on what that learner is ready to learn and, from there, on to how to provide beneficial instruction.

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