Dyslexia and Equity: A more inclusive approach to reading difficulties

James Chapman and **William Tunmer** consider the use of the term dyslexia in identifying children with reading difficulties, and whether the use of this term leads to effective and equitable practices in supporting students experiencing difficulties in learning to read.

Introduction

In this paper we consider whether the category of *dyslexia* is a useful classification that has the potential to lead to effective and equitable policies and educational practices for students who experience reading difficulties. We discuss definitions of dyslexia, research on the causes of dyslexia, identification procedures, remedial intervention and teacher preparation. We conclude the paper with suggestions for effective approaches for meeting the needs of students with reading difficulties in an equitable and inclusive manner.

Definitions of Dyslexia

In their comprehensive treatment of dyslexia in the *The Dyslexia Debate*, Elliott and Grigorenko (2014) note that defining dyslexia is both very easy and very difficult. It is easy because most people involved in researching and treating dyslexia agree that the definition should refer to the "inherent and particular difficulties encountered by those who struggle to read text" (Elliot & Grigorenko, 2014, p. 5). It is difficult because researchers and professionals have been unable to develop a universally accepted definition that is research-based, precise, distinct, and open to clear implementation. Without a clear, widely accepted definition that can be applied reliably and accurately, it is impossible to understand the nature, causes, and best treatments for dyslexia (Elliott & Grigorenko, 2014). Nonetheless, education agencies, professional organisations and advocacy groups in various countries have published definitions of dyslexia.

The UK government-sponsored Rose Report (Rose, 2009) referred to dyslexia as "a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling" (p. 30). The British Dyslexia Association (BDA) defined dyslexia as:

> a specific learning difficulty that mainly affects the development of literacy and language related skills. It is likely to be present at birth and to be life-long in its effects. It is characterised by difficulties with phonological processing, rapid naming, working memory, processing speed, and the automatic development of skills that may not match up to an individual's other cognitive abilities. It is particularly related to mastering and using written language, which may include alphabetic, numeric and musical notation. (British Dyslexia Association, 2007, retrieved from: *http://www.bdadyslexia.org.uk/dyslexic/definitions*)

The wealth of scientific evidence does not support the view that dyslexia is present at birth, that it can involve numeracy and musical notation, and that the skills may not "match up to an individual's other cognitive abilities" (Elliott & Grigorenko, 2014).

The fifth edition of the American

Psychiatric Association's (2013) *Diagnostic and Statistical Manual* (DSM-5) dropped the term dyslexia in their formal definition of specific learning disorders related to reading. The main reason was because the various international conceptions and understandings of dyslexia lacked scientific support. Instead, the DSM-5 refers to *specific learning disorders*, of which reading (word accuracy, fluency, and reading comprehension) and written expression (spelling, grammar and punctuation, and clarity/organisation of written expression) are included as literacy-related domains of difficulty. The term *dyslexia* is however recognised as a descriptive term that is used to refer to a pattern of learning difficulties that is characterised by problems with accurate or fluent word recognition, poor decoding, and poor spelling abilities.

The U.S.-based International Dyslexia Association (IDA) has retained the term *dyslexia*:

> Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading

experience that can impede growth of vocabulary and background knowledge. (IDA; retrieved from *http://eida.org/definition-of-dyslexia/*)

Dyslexia and Intelligence

A long-standing view held by advocates of the concept of dyslexia is that the learning problems are not the result of low intelligence (e.g., BDA definition). Rather, there is a subgroup of specific literacy learning difficulties (dyslexia) that is biological in origin (as opposed to environmental) and that normally occurs in students who have at least average levels of intelligence or cognitive functioning. Either explicitly or implicitly, dyslexia has been viewed as involving a discrepancy between IQ and reading performance (Siegel, 1989; Stanovich, 1991; Tunmer & Greaney, 2010).

However, there is virtually no robust scientific evidence to back the view that a discrepancy between IQ and achievement is a useful predictor of dyslexic poor readers (Seigel, 1989; Siegel & Hurford, 2019). Dyslexics are assumed to have average to high IQs, whereas "garden variety" poor readers are thought to have reading problems as a result of general cognitive weaknesses (low IQs). But many studies have shown that IQ scores cannot distinguish between poor readers who can supposedly benefit from remedial programmes (dyslexics), and those who are more resistant to intervention (non-dyslexic poor readers) (Elliott & Grigorenko, 2014).

Stanovich (2005) summarised key findings from research on the use of IQ for assessing the nature of reading difficulties as follows: a) the main problem for children with severe reading difficulties is word recognition; b) weak phonological coding skills are the main psychological process underlying problems with word recognition; and, c) both phonological skills and word-recognition problems can be remediated (at least in large part) with intensive intervention. Stanovich (2005) emphasised that none of these three factors "correlate at all with IQ" (p. 104). Intelligence tests, including tests of cognitive abilities, have little value in diagnosing dyslexia. Most contemporary definitions no longer make reference to a discrepancy between IQ and achievement.

The continued use of measures of cognitive abilities that are not directly related to reading, however, indicate that general cognitive factors are still considered important in diagnosing dyslexia. Such measures are superfluous (Siegel & Hurford, 2019). Word reading difficulties, and reading comprehension, can be assessed by classroom teachers without the need for expensive and time-consuming tests that are often inaccessible to students and parents from lower socio-economic backgrounds (Siegel & Hurford, 2019).

Dyslexia and the "Exclusion" Factor

For many years dyslexia was defined in terms of significant and ongoing reading problems experienced by children with at least average intelligence and whose difficulties were solely biological in origin. This conceptualisation means that dyslexia is not the result of socio-economic disadvantage, emotional or behavioural problems that could impact on learning, physical or sensory impairments (e.g., visual or hearing problems), or inadequate schooling or poor teaching (Chapman, 1992). The argument was that all of these factors could lead to reading difficulties, but that these reading difficulties were not dyslexia. Rather, dyslexia was thought to be ongoing difficulty with reading *after those factors were excluded*.

The socio-economic disadvantage factor is especially problematic. It would be inequitable if distinctions between dyslexic and non-dyslexic poor readers were made on the basis of observable socio-economic background and unobservable biological causal factors. Given that one of the aims of having the category of dyslexia is to enable differential expectations and perceptions, and access to additional resourcing that might result from these, children from less advantaged socio-economic backgrounds would be denied such additional resources. Further, as Brady (2019) noted, "there is increasing evidence that socioeconomic disadvantages can effect children's brain development" (p. 19). Moreover, citing Fletcher et al. (2019), Brady (2019) added that "it is not possible at the individual level to distinguish between the characteristics of cases of biologically based and environmentally induced dyslexia" (p. 19).

Simply put, children from less well-off backgrounds who experience persistent and complex reading difficulties do not usually receive the diagnosis of dyslexia, because the difficulties are attributed to environmental circumstances, such as home background, rather than to neurobiological factors. Yet it is impossible to distinguish between neurobiological or environmental factors when it comes to designing appropriate teaching interventions for those with complex reading difficulties. As Elliott and Grigorenko (2014) note, "current biological evidence for a dyslexic subgroup does not yet permit diagnosis at the individual level" (p. 11).

Research on the Biological Basis of Dyslexia

Dyslexia is usually considered to have a biological basis, as indicated earlier. Advocacy groups in particular (e.g., BDA, IDA) argue that it is important to differentiate reading difficulties that have a biological basis (dyslexia) from those that do not. Some argue that it relieves students, parents, and teachers from any sense of causal responsibility or guilt for reading difficulties (e.g., Warnke, Schulte-Korne & Ise, 2012). Contemporary scientific research, however, has not provided clear and educationally *useable* evidence regarding the biological basis of dyslexia, no matter how much many people would wish that this were so.

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Elliott and Grigorenko (2014) note that specific areas of the brain are involved in typical and atypical reading, but that research findings so far cannot be used for diagnostic purposes or to guide instructional interventions. Moreover, there are significant challenges in generalising to individuals the results from the studies on neurological biomarkers; there is a high degree of variation in the causes and characteristics of both typical and atypical reading.

Identification Procedures

Identification procedures traditionally focused on psychometric tests designed to demonstrate that dyslexic

poor readers were different from non-dyslexic poor readers partly because they had average or above average IQs. As we have already indicated, this IQ-achievement discrepancy approach is flawed and has been dropped from most operational definitions and identification approaches. However, an ongoing part of identification procedures is to use tests to infer specific types of cognitive and neurological functions.

Batteries of cognitive assessments (e.g., the Woodcock-Johnson Test of Cognitive Abilities) are often used to help categorise students as dyslexic, and to distinguish their reading difficulties as being different from those of non-dyslexic poor readers. Such assessments have failed to reliably distinguish between the two subgroups of poor readers. This has been known since the early 1980s (e.g., Kavale & Forness, 1984). Vellutino, Fletcher, Snowling and Scanlon (2004), all leading reading scientists, recommended that those whose role it is to diagnose dyslexia/reading difficulties, should avoid psychometric assessments "to detect cognitive and biological causes of a child's reading difficulties for purposes of categorical labelling in favour of assessment that would eventuate in educational and remedial activities tailored to the child's individual needs" (p. 31). As Odegard (2019) recently noted, "Parents and educators desperately want a single measure that can be administered to make the call of dyslexia… such a measure does not exist" (p. 13).

Siegel and Hurford (2019) argue that using psychometric tests to develop a profile of strengths and weaknesses is a waste of time and money. Such profiles "do not predict who will benefit from remediation or what particular intervention strategy should be employed. This is particularly the case for individuals with reading difficulties" (p. 26).

Intervention Approaches

Definitions of dyslexia typically refer to difficulties in reading and spelling, despite children having received "effective classroom instruction" (e.g., IDA: *https://dyslexiaida.org/definition-of-dyslexia/*). Few, if any, studies of dyslexia include a systematic and robust analysis of "effective classroom instruction". The probability that many children who struggle with reading do so because of inappropriate or poor teaching seldom seems to be considered. Yet it is likely that many children diagnosed as being dyslexic may be *teaching casualties*. This situation is likely to be especially prevalent for children whose classroom reading instruction is based on the multiple cues, whole language approach.

Many children who, for whatever reason, do not possess sufficient levels of essential reading-related skills when they start school, tend to develop ineffective word identification strategies that are *encouraged* in the whole language approach. For example, teachers often get children to work out unknown words by using multiple cues: picture cues, guessing from the context, semantic and syntactic cues, and sometimes saying one or two letters of the unknown word (beginning or ending letters). These strategies are ineffective for many children (Tunmer, Greaney, & Prochnow, 2015). The ongoing use of such ineffective strategies usually continues to such an extent and for such a long time that the strategies become entrenched and difficult to unlearn (Prochnow, Tunmer, & Arrow, 2015).

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Reliance on ineffective literacy learning strategies frequently has enormous negative consequences for children (Prochnow et al., 2015). Relatively small differences in essential literacy-related skills during early reading instruction often develop into large generalized differences in academic achievement. Stanovich (1986) referred to this as a "Matthew effect"; the "rich get richer and the poor get poorer". Those who get off to a good start in learning to read generally do well with reading to learn. Those who struggle at the outset of learning to read often develop more generalised learning problems. These general learning problems are very similar to many of the characteristics of dyslexia listed on some websites (e.g., IDA), such as memory problems, organisation problems, attentional problems, and motivational problems.

An Instructional Approach for *All* Children with Reading Difficulties.

If beginning readers are not making satisfactory progress in learning to read, research clearly indicates that in most cases it is because they are having problems understanding the language being read (i.e., language comprehension), problems recognizing the words of text quickly and accurately (i.e., word recognition), or both (Tunmer & Hoover, 2019). Weakness in word recognition skills usually stems from insufficient explicit instruction in alphabetic coding skills or lack of opportunities to practice and receive feedback on using alphabetic coding skills while reading. If alphabetic coding skills are still weak despite explicit instruction and practice, it is usually because students have inadequate knowledge of the alphabetic principle, letter knowledge, or phonemic awareness. All of these skills need to be explicitly taught to those children who lack them, *regardless of the reasons*.

The explicit teaching of strategies for reading and spelling provides children with the ability to read increasingly large numbers of words quickly and automatically. Automatic word reading is important because it lets children focus on the meaning of the text they are reading, instead of getting bogged down trying to work out key words. As children learn word patterns, they must also learn how to use the word patterns for attempting to read and spell new words (Tunmer et al., 2015). This strategic use of word patterns should be explicitly stated and explicitly taught so that children learn how to use this knowledge on a spontaneous basis. Teaching word patterns (or phonic patterns) is seldom done systematically in many Australian and New Zealand schools.

Teacher Preparation and Professional Development

To effectively teach reading skills to children requires that teachers have a high level of understanding of the basic structure of the English language (Joshi et al., 2009). This knowledge is

even more important if teachers are to effectively help children with reading difficulties (Arrow et al., 2015).

For children who have early and ongoing reading difficulties, teacher knowledge is likely to be the critical element that influences the child's future success or failure in learning to read. Unless children with initial reading difficulties receive specialist instruction, up to 75% of students who struggle with reading in their third or fourth year of schooling will remain poor readers at secondary school (Francis et al., 1996), and on into adulthood (Chapman, Greaney & Prochnow, 2015). For this reason, we argue that it is important that all students receive early reading instruction that includes explicit instruction in the phonological aspects of the English language. However, this is not likely to occur unless the teachers themselves have a good working knowledge of these necessary language elements.

Tunmer and Hoover (2019), in their discussion of the *Cognitive Foundations of Learning to Read*, draw attention to two key questions that competent teachers and remedial specialists can answer about their practice: what are you doing and why are you doing it? Being able to answer these questions involves a broad understanding of children's cognitive capacities involved in learning to read, including knowing the typical developmental patterns associated with reading acquisition. Effective teachers can identify what beginning or struggling readers know and what they still need to know to become skilled readers. And following that, they can provide their students with targeted, evidence-based instruction.

Initial teacher education programmes are particularly important. A number of reports and publications on the nature of teacher education in literacy have indicated that pre-service teachers need instruction in the key components of reading, including phonic knowledge, vocabulary, and reading comprehension (Fillmore Wong & Snow, 2000; Moats, 1999; National Inquiry into the Teaching of Reading, 2005; National Reading Panel, 2000; Rose, 2006; Snow & Juel, 2005; Status of Reading Instruction Institute, 2007). All agree that a skilled teacher is crucial to bring the components of learning to read together for all students.

However, many teacher educators do not have adequate literacy-related knowledge to teach their pre-service student teachers. Both Bos et al. (2001) and Joshi et al. (2009) found that many teacher educators had low levels of explicit linguistic knowledge, which suggests that they would not be able to effectively teach that content to their students. In addition to the lack of knowledge for directly teaching pre-service teachers, textbook choices for supporting courses in literacy may also be inadequate. Teacher education practices in colleges of education suggest that many (maybe most) teacher educators lack sufficient knowledge of how to teach reading effectively to *all* children (e.g., Buckingham, Wheldall, & Beaman-Wheldall, 2013; Carroll, Gillon, & McNeill, 2012).

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Conclusion

Official use of the term *dyslexia* is as much a hindrance to change, as a rallying point for more effective reading instruction and resources for intervention. Instead, we argue that the focus ought to be on effective classroom instruction and remedial intervention for *all* students who experience reading difficulties, regardless of the assumed causes. In taking this viewpoint we acknowledge that the term *dyslexia* may meet the psychological, social, political, and emotional needs of many stakeholders. However, the needs of stakeholders must take into account reliable scientific evidence, as well as the political and social reality that the dyslexia category, as currently defined, will cause inequity and injustice. *Reading difficulties* is a concept that can be based on scientific evidence, and can be far more inclusive and appropriate.

In conclusion, we assert that policies and practices must change to develop an approach to literacy education that ensures all children who go to school, regardless of their circumstances (biological or environmental), have approximately the same probability of success in learning to read and write; that is, an approach that does not continue to contribute to inequality in society.

Professor James Chapman is a Professor Emeritus in the College of Humanities & Social Sciences at Massey University, in Palmerston North, New Zealand. He has published over 150 journal articles, book chapters and books on learning disabilities, special education, literacy learning difficulties, early literacy development, reading intervention, and self-system factors in academic achievement. Professor Chapman is a Fellow of the International Academy for Research in Learning Disabilities (and past President), and Science Advisor for the Foundational Learning Success Project at the University of Canterbury in Christchurch, New Zealand. He serves on the editorial boards of numerous journals, including the Journal of Learning Disabilities, the Australian Journal of Learning Difficulties, and the Asia Pacific Journal of Developmental Differences. In 1999 he was co-winner of the International Reading Association's Dina Feitelson Award for Excellence in Research

Professor William Tunmer is Distinguished Professor Emeritus of Educational Psychology in the College of Humanities and Social Sciences at Massey University in New Zealand. He has contributed significantly to research in the area of reading, and is probably best known for the paper he co-authored in 1986 with Philip Gough which first proposed the 'simple view of reading'. He was the recipient of the AJLD Eminent Researcher Award in 2019, and his article, co-authored with Wesley Hoover, on 'The cognitive foundations of learning to read: a framework for preventing and remediating reading difficulties', was published in the May 2019 Issue of the Australian Journal of Learning Difficulties.

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