

# The end of dyslexia?

Julian G. Elliott and Elena L. Grigorenko argue that the label is a cultural meme that remains unscientific and conceptually problematic

**In 2005 Julian Elliott contributed to a television programme, *The Dyslexia Myth*, that highlighted the many misuses and misunderstandings of the dyslexia construct and the corresponding failure of professional services to cater for all who encounter reading difficulties. In the subsequent fallout he was repeatedly accused of undermining efforts to help children with dyslexia and setting back years of hard-fought-for advances. Indeed, in the programme itself he was criticised by a number of teachers on the grounds that parents who have fought for their children for years will be rendered puzzled and distraught by such arguments.**

**Here Julian Elliott and his collaborator Elena Grigorenko ask, What is understood by the term *dyslexia*? and Is there really any value in the construct?**

To what extent is it professionally acceptable for psychologists to use diagnostic labels that they know to be scientifically questionable on the grounds that discontinuing their use would reduce the salience of very real difficulties that many people experience, and undermine the influence of lobby groups in highlighting the need for action? In essence, this is a key question that has occupied our thinking since *The Dyslexia Myth* was broadcast in 2005.

In conversations and debates since this time, many psychologists have readily acknowledged that, in their opinion, the term *dyslexia* is unscientific and conceptually problematic, yet have often added the rider that maintaining the use of the label is necessary in order to highlight the severity and debilitating nature of developmental reading difficulty and gain public support. Many have justified their use of the term *dyslexia* by reference to the positive, often affirming, effects that the label can offer to individual children and their families. Where there may have been doubt about the reasons for their academic struggles, the diagnosis can provide relief that the child is not cognitively weak, and this can result in optimism for the future. For some professionals, scientific questions about the use of the label, misunderstandings about the nature of the difficulty and its relationship to intelligence, and the misplaced belief that there are evidence-based forms of treatment that follow on from the diagnosis, are secondary to creating a greater sense of well-being on the part of the individual and acquiring additional

resources to maximise the impact of intervention.

These issues have informed the conclusions of our book, *The Dyslexia Debate*. Its production has involved an examination of current knowledge of dyslexia, in psychology, neuroscience, genetics, education, and social policy. In the light of current knowledge in these fields we have subsequently considered the implications for clinical and educational practice. While recognising the concerns about losing such a powerful and, for many, desirable label, the book concludes by arguing for an end to its use and calls for a correspondingly greater focus upon identifying and addressing each individual's particular difficulties in ways that tie into what we know to be the best forms of practice.

## Understandings of dyslexia

Since clinical cases were first reported by physicians at the end of the 19th century, it has been clear that some children experience substantial difficulty in learning to read. In the view of some commentators, for example, the MP Graham Stringer, the root cause is poor educational practice. On his website in 2009, he described dyslexia as 'a cruel fiction' and added:

...to label children as dyslexic because they're confused by poor teaching methods is wicked... The sooner it is consigned to the same dustbin of history, the better.

The reality is that complex reading problems clearly have biological bases and cannot be ascribed merely to inefficient classroom practice. Of course, environmental factors can be influential in maximising or limiting a child's progress (for example, after the cessation of the 'Reading Wars', we now recognise the importance of structured phonics techniques for those with potential reading difficulties, rather than the primary use of whole-language approaches).

### questions

To what extent should our attempts to derive scientifically valid diagnostic terms be tempered by the functional value that these have for individuals?

Does it matter that dyslexia is diagnosed on the basis of symptoms that may differ substantially in those so labelled?

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For many years, *dyslexia* was a term used to differentiate between two groups of poor readers. Those with dyslexia were considered to be poor readers with high IQs. In contrast, so-called, 'garden variety' poor readers were those where there appeared to be no discrepancy between their IQ and reading ability. The power of this conception lay in the affirming message that the person with dyslexia was of high intellectual ability, and the application of the label was able to counter often humiliating and hurtful experiences where some poor readers were treated in ways that were demeaning and failed to acknowledge their true cognitive abilities. However, a raft of research studies (see Elliott and Grigorenko, 2014, pp.22–26, for detailed discussion) demonstrated that this distinction was not meaningful in terms of differentiation, treatment or prognosis, and the difficulties that were encountered by poor decoders applied across the full range of intellectual ability. This should be contrasted with reading comprehension difficulties, however, where a relationship with measured IQ is clearer (Vellutino et al., 2004), and cognitive tests may help to shed light upon the specific nature of a child's higher-order reading comprehension difficulties involving such processes as reasoning, inference and logical deduction (Christopher et al., 2012).

While the lack of relationship between decoding difficulties and IQ is readily accepted by the field, and is reflected by the official position of organisations such as the British Dyslexia Association and the International Dyslexia Association, it is disconcerting that many clinicians continue to use the discredited discrepancy model (for review, see O'Donnell & Miller, 2011; Stanovich, 2005). Of course, such a discrepancy-based label is highly desired



by parents and there will be few complaints when it is applied, largely because it helps to undermine any suggestion that the poor reader is lacking intellectually.

For those who follow the details of the argument and the accumulation of the relevant data, however, agreeing on a new, and meaningful, explanatory role for the dyslexia construct has proven difficult (Wadlington & Wadlington, 2005). In line with conceptions of the construct as essentially dimensional, rather than categorical (despite its continuing use as a categorical label – see confusing messages

concerning this, for example, in the 2009 Rose Report), it is used by some to describe all those who encounter difficulties in reading (decoding) text. For many, it can be used interchangeably with terms such as reading disability or specific reading difficulties. Some suggest that 'dyslexia represents the lower end of a normal distribution of word reading ability' (Peterson & Pennington, 2012, p.1997), although where the cut-off should be applied is unclear (with prevalence estimates ranging from 5 to 20 per cent). However, if dyslexia is to be used to describe all those who struggle with

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decoding, this, at a stroke, removes any need for a clinical diagnosis, with all the attendant beliefs and expectations that it will point to a particular form of targeted intervention.

For others, dyslexia represents far more than merely reading problems, encompassing a wide variety of linguistic, self-regulatory and adaptive skills that impact upon daily living and social and emotional functioning. Some contend that individuals with dyslexia are overrepresented in the criminal justice system (Dyslexia Action, 2005). Others suggest that many individuals with dyslexia demonstrate creative gifts that often mark them out for success in business and life generally (Davis, 1997). In reality, the success of high-performing adults with dyslexia is unlikely to be a function of particular cognitive factors. In a recent study (Łockiewicz et al., 2013), for example, superior creative and visuospatial abilities were not found in a sample of university students and graduates with a diagnosis of dyslexia. Rather, it would seem that the outstanding success described in anecdotal reports of high-achieving people with reading disabilities is more likely to depend upon particular personality and motivational factors.

These and some of the many other differing ways that the construct has been conceptualised are outlined in the box opposite. We analyse the weaknesses of these differing perspectives in some depth in our book, and the key conclusion is that it is has proven impossible to distinguish an identifiable dyslexic subgroup in a coherent and consistent fashion that is acceptable to the majority of the scientific and professional community.

For many, the term *dyslexia* describes a biological condition that can be contrasted with environmental explanations for an individual's reading problems. It is this biological origin that has often been used to legitimise the validity of the label when it has been challenged (e.g. Nicolson, 2005). Yet, the knowledge that has accumulated in neuroscience and genetics,



if anything, indicates the similarity of the aetiological bases of reading difficulties that cannot be attributed to poor schooling, however these difficulties are referred to (specific reading disability, developmental dyslexia or poor reading).

Moreover, the relationship between the child's biological potential and the influence of their particular environment is highly complex and not realistically unpicked by means of current clinical procedures. At the current time it is impossible to separate poor readers into clear causal groups based upon biological phenomena – there are no established biomarkers, either genetic or brain-based, that can currently be used to make such a distinction. Moving from group average differences that are typically portrayed in the colourful images of brain function to individualised assessment represents a major challenge for such approaches.

While individual profiling on the basis

of genetics and neuroimaging may be a future possibility – particularly if this is combined with behavioural indicators and

environmental measures of an individual's learning (Black & Hoefl, 2012) – it should be borne in mind that the likely costs will be prohibitive for some time. Even more problematic is the use of such approaches to inform intervention. While there is

promise for the future (Hoefl et al., 2011), we should seek to avoid overblown hype and claims (Bishop, 2013; Turner, 2012) and accept that we are a long way from achieving a neuroscience that can inform pedagogic responses in line with individual differences (Grant, 2012).

It is now understood that complex developmental difficulties such as reading disability are best considered as heterogeneous conditions influenced, but not determined, by multiple genetic and environmental risk factors (Petrill et al., 2010; Willcutt et al., 2010). Findings such as those by Jednoróg et al. (2012) that socio-economic status seemingly has an

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influence upon the structure of the brain, and that heritability declines linearly in relation to lower levels of parental education (Friend et al., 2008; Rosenberg et al., 2012), have highlighted the current impossibility of meaningfully identifying a biologically based dyslexic subgroup within a larger pool of poor decoders.

Most researchers and clinicians have emphasised sensory, cognitive and motor processes as underlying markers of dyslexia. However, despite extensive research over many decades we continue to have only rudimentary understandings, and even less consensus, about causal mechanisms. Certainly, the general consensus of researchers, even a decade ago, that the basis of dyslexia was linguistic and not visual has been challenged by findings from increasingly sophisticated studies of visual attentional processes (Bosse et al., 2007; Collis et al., 2013; Dehaene, 2009; Franceschini et al., 2012; Hari & Renvall, 2001; Lallier et al., 2010). While phonological processes appear to be particularly important, there is continued uncertainty as to the precise nature, operation and role of these in respect of reading difficulty (Boets et al., 2013; Ramus & Szenkovits, 2008).

Furthermore, it is now increasingly recognised that explanations involving a single homogeneous deficit are inadequate (Snowling & Hulme, 2012) and neither phonological weakness, nor the other myriad explanatory factors (e.g. rapid naming or working memory), can account for the difficulties of all of those with reading disability. Equally problematic have been attempts to match individuals to any so-called dyslexic profile (Stuebing et al., 2012).

In line with the operation of the medical model, there exists a strong belief that identification of weak or deficient cognitive processes underlying dyslexia will lead to appropriately tailored programmes of intervention. However, with the exception of phonological interventions for young children – and even here some doubts have been expressed about their long-term

## Differing understandings of who may be considered to have dyslexia

- | anyone who struggles with accurate single-word decoding
- | anyone who struggles with accurate and/or fluent decoding
- | those for whom decoding is merely one element of a more pervasive dyslexic condition marked by a range of comorbid features; this can include compensated dyslexics who no longer present with a severe reading difficulty
- | those who score at the lowest end of the normal distribution on an appropriate reading test
- | those whose decoding difficulties cannot be explained in alternative ways (e.g. because of severe intellectual or sensory impairment, socio-economic disadvantage, poor schooling, or emotional/behavioural difficulty)
- | those for whom there is a significant discrepancy between reading performance and IQ
- | those whose reading difficulty is unexpected
- | those whose poor reading contrasts with strengths in other intellectual and academic domains
- | those whose reading problems are biologically determined
- | those whose reading problems are marked by certain associated cognitive difficulties (in particular, phonological, rapid naming, and verbal memory deficits)
- | those poor readers who also present with a range of symptoms commonly found in dyslexics (e.g. poor motor, arithmetical, or language skills, visual difficulties, and low self-esteem)
- | those who demonstrate a discrepancy between reading and listening comprehension
- | those who fail to make meaningful progress in reading even when provided with high-quality, evidence-based forms of intervention

effectiveness (Olson, 2011) – the evidence from existing research on intervention has shown that such faith is misplaced and potentially unhelpful. This is not a new finding, however. Indeed, Vellutino and colleagues stated a decade ago (2004) that clinicians are best advised not to employ psychometric measures in an attempt to identify underlying biological or cognitive causes for the purposes of categorical labelling, but instead, should undertake assessments that can inform individually tailored educational interventions.

### A powerful meme

Given that the construct of dyslexia is scientifically problematic in several respects, it is perhaps surprising that the label has resisted repeated challenges to

its use. Of course this is to ignore the many powerful functions that it serves. It cannot be denied that the label often helps in gaining access to additional resources or support (Macdonald, 2009). For some, its association with higher levels of intelligence reduces the shame and humiliation that are often experienced by those who struggle to learn to read (Burden, 2008) and the sense of responsibility, even guilt, that can be felt by their parents and teachers (Ho, 2004; Warnke et al., 2012). Some parents believe that their child will be treated more sympathetically by teachers, and expectations of their intellectual and academic potential will be higher. And, as noted, above, many erroneously believe that a diagnosis of dyslexia can inform appropriately tailored forms of

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intervention that somehow go beyond existing approaches used with poor decoders. There is a vast industry geared to providing assessments, diagnoses and treatments for dyslexia, and some teachers have expressed concern about possible recriminations should a child's dyslexia be seemingly 'missed', with attendant anxiety about the potential threat of litigation (Senco Forum, 2005).

Such factors are of less concern where the term *dyslexia* is employed to describe all children who struggle to learn to read – but then the term would offer little additional value (Stanovich, 1994). Nevertheless, such a scenario has its attractions: in particular, expensive diagnostic tests (typically more easily available to those with pre-existing social, economic and political advantage) would no longer be required to elicit a diagnosis. The use of the construct to describe poor decoders generally, while popular with many reading researchers would not be acceptable to many other researchers, clinicians and teachers who see the differential use of the label as beneficial. Additionally, some perceive such a definition as being either too inclusive or too exclusive. Those who consider individuals with dyslexia as representing a subgroup would eschew such a notion as it would no longer permit differentiation between dyslexic and other poor readers. Equally, those who see dyslexia as comprising far more than (merely) a reading difficulty would resist what they would consider to be a narrowing of the construct's explanatory field.

In our book, we call for an end to the use of the *dyslexia* label to be replaced by more detailed descriptors of specific literacy skills and deficits underpinning reading difficulty (within this latter term, we contrast reading accuracy, reading fluency, reading comprehension, spelling and writing). We recognise that poor readers often suffer from misunderstandings about their true intellectual and educational potential but argue that such fallacious understandings should be addressed directly, rather than

side-stepped. In some situations, intellectual assessment may prove informative, but this would be for the purposes of understanding the individual's strengths and weaknesses (e.g. to ensure that teachers provide appropriate levels of cognitive challenge) rather than for some form of diagnostic bifurcation between dyslexic and 'garden variety' poor readers. We highlight the need for assessment for intervention rather than assessment for diagnosis. We call for the identification of all struggling readers at an age as young as possible and, in line with the increasingly influential response to intervention model, the swift introduction of the most effective evidence-based interventions, irrespective of supposed aetiology.

Nearly 40 years ago, Professor William Yule, one of the leaders of the ground-breaking Isle of Wight epidemiological study concluded:

The era of applying the label 'dyslexic' is rapidly drawing to a close. The label has served its function in drawing attention to children who have great difficulty in mastering the arts of reading, writing and spelling but its continued use invokes emotions which often prevent rational discussion and scientific investigation. (1976, p.166)

Yule's prediction failed, not because science later proved his understanding of dyslexia to be wrong but because the construct continues to meet the social, psychological, political and emotional

needs of multiple stakeholders. Dyslexia serves as a cultural meme (Kamhi, 2004) that is rooted in everyday discourse and that continues to resist theoretical and ethical concerns (Reason & Stothard, 2013). The meme's potency does not depend upon the extent to which it is

true, meaningful or potentially harmful. Rather, what matters is that it is seemingly 'easy to understand, remember and communicate to others' (Kamhi, 2004, p.106). The fact that understandings of dyslexia

are often impoverished, misleading and incorrect has had little bearing on the dyslexia meme's capacity to survive. Given the power of the label for many different groups, perhaps we should accept that there are many types of dyslexia, social constructs that are each created by, and reflect the values and agendas of, differing groups? We reject such a notion, for to accept such a position we must surely dispense with any suggestion of scientific rigour.

Nevertheless, some psychologists and educationalists are likely to continue to argue that the construct, whatever its weaknesses, serves a valuable function that brings help that might not otherwise be forthcoming. We disagree and call for the wider use of approaches to reading problems that are scientifically and professionally sound. Nevertheless, it will be interesting to see whether the conclusions and recommendations of *The Dyslexia Debate* that the dyslexia construct is scientifically flawed and should be discontinued, prove to be any more successful than Yule's prediction.

"There is a vast industry geared to providing assessments, diagnoses and treatments for dyslexia"



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