Do dyslexics need Dyslexie?

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The media in general, but perhaps the early evening current affairs shows in particular, love a good 'new cure for dyslexia' story. The latest 'gee whizz' offering doing the rounds is a special font called Dyslexie that apparently makes reading so much easier for children with dyslexia. Recently, the Australian media has labelled the font as "a breakthrough" (Channel 7 news, 30/4/16) and a small Sydney-based company has struck a deal with Australia's largest book publishers to print thousands of books in the new typeface (*The Australian*, 16/4/16). And would it not indeed be wonderful if we really could help children with dyslexia simply by changing the font of the written materials we offer to them?

At the risk of being labelled party poopers, we beg to differ; our research (just published in the international journal *Dyslexia*) casts serious doubt on the efficacy of this new font. In essence, what we found was that the Dyslexie effect is, in fact, very small, leading to only 7% faster reading speed. Moreover, even this small difference can be achieved with a regular font, such as Arial, by simply adjusting the word and letter spacing.

The Dyslexie font was developed by Christian Boer, a Dutch graphic designer. The font is characterised by heavier than normal bases to the letters. The font also includes larger spacings both between words and between letters in words, an important consideration, as we shall see. The figure below provides an illustration of the way that Dyslexie (first line) differs from the popular Arial font (second line).

But does Dyslexie make conceptual sense? And, even more importantly, what is the evidence for the efficacy of this new font?

The wind howled in the gum trees.

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There is now general consensus in the field of reading research that dyslexia has multiple causes. In most individuals with dyslexia, the cognitive problems that underlie their reading impairment are beyond the early visual level. Few reading scientists would have expected that the idiosyncratic letters of Dyslexie would positively influence reading performance in the first place. The 'heavy bases' of the letters were developed to help suppress the supposed tendency of individuals with dyslexia to mirror-reverse or rotate letters. Notably, reading researchers have already refuted this 'mirror and rotating' theory, over 40 years ago. Moreover, the graphic designer

aimed to make the letters as distinct as possible from each other to avoid confusion between letters. However, our pixel-overlap analyses show that, probably due to the heavy bases, the letters of Dyslexie are actually *less* distinct than the letters of Arial. Consequently, it is unlikely that providing additional visual support, such as that provided by the Dyslexie font, will prove to be effective.

That's all very well in theory but what about in practice? For a product that has been seized upon so readily and the considerable sums invested to publish books in this font, there is surprisingly little empirical evidence to support its efficacy. In fact, there have been no published, peer-reviewed, journal articles testifying to its efficacy, or otherwise, until now. The evidence base consists of three unpublished Dutch masters theses and two non-refereed articles in practitioner journals. The results of these studies were equivocal, to say the least.

Consequently, our research team (Eva Marinus, Michelle Mostard, Eliane Segers, Teresa Schubert, Alison Madelaine and Kevin Wheldall) set out to test whether the Dyslexie font really does make reading easier for children who struggle with reading. We tested 39 low-progress readers from Years 2 to 6 who were asked to read four different texts of similar difficulty level in four different font conditions (in counterbalanced order) that were all matched on letter display size, but differed in the degree to which they were matched for spacing settings.

Our results showed that low-progress readers did indeed perform better, in terms of number of words read correctly per minute, in Dyslexie font than in standardly spaced Arial font. To put this in perspective, however, this amounted to only 7% more words read correctly per minute. More importantly, when within-word spacing and between-word spacing in Arial font was matched to that of Dyslexie font, the difference in reading speed was no longer significant. We concluded that the efficacy of Dyslexie font lies not in its specially designed letter shapes, but arises from its particular spacing settings. These spacing settings can be replicated in Arial and other fonts. As a proof of concept, we have developed EasyRead, a free Chrome browser extension that applies Dyslexie's spacing settings to all fonts on all web pages you visit. You can install EasyRead from the Chrome web store: https://goo.gl/CLwZgu.

The implication of our study, the first refereed journal article published on the efficacy of the Dyslexie font, is that there is still no evidence to suggest that the font is particularly helpful for children who struggle to read. Parents and teachers might be well-advised to save their money and not buy specially published books employing the Dyslexie font if the only benefit is a mere 7% increase in reading fluency. This increase, moreover, can be replicated in other fonts by simply adjusting the spacing. Instead, parents and teachers might be better-advised to concentrate on the phonological aspects of reading by employing effective reading instruction.

Reference note

Marinus, E., Mostard, M., Segers, E., Schubert, T., Madelaine, A., & Wheldall, K. (In press). A special font for people with dyslexia: Does it work and if so, why? *Dyslexia*, doi:10.1002/dys.1527

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