Dyslexic Readers and the Impact of Font
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Abstract

Those living with dyslexia are in a challenging position where their ability to read is inhibited by a learning disability that is unique to each individual. No single person with dyslexia experiences the same reading challenges as another person with dyslexia. Some of the common symptoms include letters flipping or swapping places, moving around the page, or becoming a challenge to distinguish from one another. These distinctive reading experiences have led some researchers to focus their work on the impact of fonts on those with dyslexia, gauging if some factors of typefaces lead to an easier or more challenging time with reading. One of the most notable findings behind fonts and their link to dyslexia is the distinction between serif and sans serif typefaces, with the latter being best suited for dyslexic readers.

Further, some graphic designers have gone so far as to create fonts specifically designed to aid those with dyslexia, taking special care to make each letter unique so that they are more distinguishable from each other. While some will agree that these fonts are indeed a help to those with dyslexia, there is also a fair amount of skepticism behind these fonts, making results inconclusive.

For people living with dyslexia, a task that seems as straightforward as reading a text suddenly becomes a greater challenge, as they experience a variety of obstacles while reading. As their eyes move across the page, letters can be hard to distinguish from one another, or perhaps some letters will swap places or blend together, making it unclear what the word truly is. This leads to a time-consuming struggle, where a dyslexic individual will have to focus intently on deciphering the word or phrase, resulting in better accuracy at the expense of reading speed. However, studies have shown that a number of factors, particularly with the font used in writing, can influence the ease with which a dyslexic person can read.

Healthcare professionals at Mayo Clinic noted that dyslexia is caused by the areas of the brain that process language, the auditory and visual cortexes, being unable to identify speech sounds and how they relate to the written letters and words (Mayo Clinic, 2017). Thus, dyslexic people can uniquely experience a variety of symptoms when trying to read and interpret written texts, some of which include letters appearing backwards, upside down, moving around the page, or letters with similar shapes being difficult to distinguish, among many others.

The Best and Worst Fonts for Dyslexia

Based on research conducted by Luz Rello and Ricardo Baeza-Yates, two researchers at Pompeu Fabra University in Barcelona, Spain, there are certain qualities of fonts that make reading easier for dyslexic people. In their 2013 study, they presented dyslexic participants with 12 different texts typed in 12 different fonts that are a selection of serif, sans serif, monospaced, proportional, italic, or roman typefaces. Rello and Baeza-Yates then used eye-tracking technology to observe the ease and speed with which the participants read the texts, noting any errors and concluding the session by directly asking the font preferences of the participants. The two key areas that were measured are the reading time and the level of fixation. The former refers to how long it took each participant to read the text, while the latter tracks the letters/words that they paused to fixate on (Rello & Baeza-Yates, 2013, p. 3).

The findings from this study highlight some interesting trends in terms of increasing readability for dyslexic people, the primary preferences being sans serif, monospaced typefaces (Rello & Baeza-Yates, 2013, p. 6). The participants also had an inclination to find italic, proportional fonts much harder to read. From the data gathered from this study, Rello and Baeza-Yates recommend that Helvetica, Courier, Arial, Verdana, and Computer Modern Unicode (See Figure 1) are some of the best typefaces for dyslexic people. The study also states that among serif fonts, Times New Roman is one of the easier ones for dyslexic people to read, and overall, Arial Italic is one of the most challenging, despite being sans serif (Rello & Baeza-Yates, 2013, p. 2).

Figure 1: Above are examples of three of the fonts tested by Rello and Baeza-Yates (GearedBull, 2008, 2006, 2007).

Fonts Created For Dyslexia

However, with the Dyslexia Center of Utah noting that 15-20 percent of the population has a language-based learning disability (n.d.), some organizations went so far as to create typefaces that are designed specifically for those with dyslexia. One of the more popular fonts that was created for this purpose is Dyslexie, which was designed by Christian Boer in his final year of studying graphic design at the University of Twente, a research university located in the Netherlands. Boer, in preparation for his finals, was struggling with his own dyslexia, so he decided to create Dyslexie as his graduation project. The font itself designs each letter to be unique in its shape, so it cannot be as easily confused with other letters (Dyslexie Font – Home, 2008). Additionally, as shown in Figure 2, the bottoms of the letters are thicker as a way to "anchor" them in place, the spacing of the letters is wider, and letters such as "b" and "d" have slants to make them more distinguishable from each other.

Figure 2: Above is a sampling of how the Dyslexie letters look (Dyslexie Font, 2008).

Despite the thoughtful development of this typeface, it has received mixed reviews with some claiming that it does not make a significant difference in improving readability. Boer himself has stated in an interview with Fast Company, a monthly business magazine, "Dyslexie is not a cure, but I see the font as something like a wheelchair" (Pavlus, 2011). In this sense,

Boer's intention was to create a font that would improve the efficiency with which dyslexics read. Some would agree with Boer, as shown in a study conducted by the organization behind Dyslexie; their concluding results indicate that 73.2 percent of participants made fewer mistakes with Dyslexie when compared to other typefaces (Dyslexie Font, n.d.).

On the contrary, two years after Dyslexie's release, Renske de Leeuw, a student at the University of Twente, conducted an experiment to test Dyslexie's effectiveness in improving readability. With a sample of 43 participants, Leeuw concluded that the font does not make a significant impact on reading speeds and comprehension (Leeuw, 2010). However, her study received criticism for having a statistically low sample size, and critics agreed that more research must be done to draw a meaningful conclusion.

Though there are mixed reviews of Dyslexie's effectiveness, it seems to be a matter of preference to each dyslexic reader; after all, with each dyslexic individual having unique symptoms, it is fair to assume that they would have unique preferences towards fonts as well. The few consistent opinions amongst dyslexics is that sans serif, monospaced typefaces are the most effective at increasing readability, and overall, there is still much to learn about dyslexia and the factors that influence it.

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