ReadClear: Making Reading Real

Category
Software

An app for every phone, tablet and browser that restores the joy of reading to those with brain-related visual impairment.

Image: iStock

Background

Strokes happen every five minutes. In the UK alone, 100,00 people have strokes each year and in total, there are 1.3 million stroke survivors nationwide. 30% of stroke survivors experience persistent visual impairment. This equates to 390,000 people in the UK who will struggle to see for the rest of their lives. In addition to sight loss, a third of stroke survivors (~429,000 people in the UK) will experience aphasia. Aphasia is a language impairment resulting from brain damage and/or neurological conditions. The majority of people with aphasia also have reading difficulties. On the other hand, people with degenerative conditions such as Posterior Cortical Atrophy (PCA), who comprise of 8-13% of those in specialist dementia clinics in the UK, also develop severe reading impairment. It is estimated that around 4 million people in the world live with some kind of progressive neurological condition and associated brain-related visual impairment.

Technology Overview

The ReadClear app has one simple mission: to Make Reading Real. Developed by world-leading scientists at the UCL Queen Square, Institute of Neurology, and co-produced by people living with brain-related visual impairment and issues with hand dexterity, ReadClear is backed by evidence-based research. ReadClear improves reading and the visual experience in people with brain-related sight loss.

Specifically, ReadClear is a clinically proven app to assist reading in people with brain-related visual impairment. The app has been co-designed with people with brain-related visual difficulties and related difficulties with hand dexterity and the use of touching screens. The app navigation is easy to use for people with hand dexterity issues. It also allows for a very specific customisation of text to prevent readers from getting lost on the page and experiencing visual crowding (words and letters cluttering up). ReadClear has been tested in a randomised clinical trial, proving clinically effective at improving reading accuracy and reading enjoyment in people with brain-related visual impairment.

Figure 1, Figure 2.

Youtube.

Benefits

There is no other assistive reader in the market specifically tailored to the needs of people with brain-related visual impairment. Whilst there are some tools on the market for people with brain-related visual impairment, they show several limitations;

1. Current tools have been designed for rehabilitation, rather than to support reading

2. Existing solutions do not address the needs of people with visual impairment and hand dexterity issues

3. Specific challenges of people with brain-related visual impairment (which are different to those with, for instance, developmental dyslexia of sight loss due to eye disease) are not addressed.

ReadClear is unique in the sense that it addresses all three challenges. It is the first assistive reading aid available on the market that has been co-designed by people with brain-related visual impairment. By way of example, the reading accessibility settings on the Kindle do not take hand dexterity deficits into account which usually accompanies visual deficits after brain injury. Patients with brain-related visual impairment and associated hand dexterity cannot interact easily with Kindle screens. Another example is Microsoft's Immersive Reader, whose complexity makes it useless for the patients that are seen in clinics.

ReadClear fills the gaps in the market. It is designed by and for end-users and meets their needs. The app is explicitly not a rehabilitation tool but specifically a compensatory assistive tool that supports reading in people who otherwise are not able to read.

People with non-progressive conditions (such as stroke and aphasia) who cannot benefit from reading therapy will likely be able to read again using the ReadClear assistive tool. They can continue using the tool for the rest of their lives.

In the case of people with progressive conditions, the research invested into developing ReadClear has demonstrated that people can benefit from it from the very early stages up to 3 or 4 years into the disease. Losing the ability to read is a devasting experience that puts people at higher risk of cognitive decline, social isolation and poorer mental health. This reading app can prevent or cancel out those risks.

Applications

Market, target market and customers

The Potential Addressable Market is anyone who reads so, potentially, 84% of the UK population (the remaining 16% have poor literacy skills). The Total Addressable Market is those with visual impairment who, according to NHS statistics, make 2 million people in the UK (increasing to 2.7

million by 2030). The Serviceable Available Market that can be reached by the team in the next 12 months is those registered in patient organisations and patient support groups and forums.

Indicators of willingness to pay

Customers will be, in part, end-users. Public sector organisations in the UK have a legal duty to make websites accessible. As such, the team intends that government and media organisations will buy or subscribe to the ReadClear service to make the content of their websites and libraries more accessible.

Many of patients with visual impairment are already paying for other assistive services (such as the Amazon Alexa which operates using voice command and OrCam, a wearable device) for activities other than reading. Primary research conducted by ReadClear shows that the same individuals who use other assistive services would be willing to use additional reading devices if it was available. For example, at the end of the study with people with PCA who trialled ReadClear, some participants bought their own tablets so they could download the research version of the app and continue using it.

Opportunity

• Commercial partners to licence the ReadClear technology within the assistive technology space

• Commercial partners looking to transform their online website to be accessible to the visually impaired

Seeking

Commercial partner,

Licensing

IP Status

Copyright,

Know-how based