Evaluation and Practice of Mobile Applications as Assistive Technology for Students with Dyslexia

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Background/Significance

Assistive Technologies (ATs) are broadly defined as "any technology, which enhances the performance of individuals with disabilities" (Haq & Elwaris, 2013, p. 880). The purpose of this poster is to evaluate the benefits of mobile applications as an assistive technology for students with dyslexia.

Significance: Using knowledge based on previous studies pertaining to the benefits of mobile applications as an assistive technology for individuals with dyslexia, the researchers in the present systematic review aim to identify specific practices that have been shown to improve the reading engagement and comprehension of individuals with dyslexia.

Methods

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were used for conducting the search (Moher, Liberati, Tetzlaff, Altman, & the PRISMA Group, 2009). A comprehensive search of electronic databases was conducted (e.g ERIC, PubMed, CINAHL Complete, and Web of Science). A summary of the article exclusions with reasoning is presented in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram (Moher, Liberati, Tetzlaff, & Altman, 2009) in Figure 1.

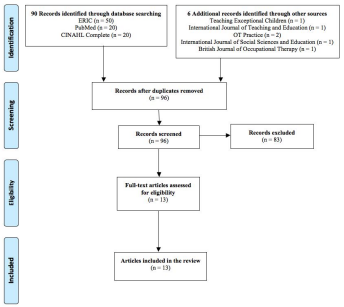

Figure 1. Study flow diagram for review of studies pertaining to assistive technology and dyslexia.

Analysis

The studies had to meet three criteria to be included in the review: (a) studies published between 2011 and 2018, (b) studies used mobile applications and assistive technology, and (c) studies utilizing assistive technology to held individuals with dyslexia.

Results

The search identified 96 potentially relevant articles. After reviewing the titles and abstracts and removing duplicates, 83 were excluded on the basis that they did not meet the inclusion criteria. The remaining 13 studies were deemed potentially relevant to the topic based on the titles and abstracts. The full-text of each of the peer-reviewed articles were then checked, and a decision was made to include the articles for data analysis or exclude the articles from the next stage of assessment.

General Assistive Technology and Dyslexia

AT mediates challenges students encounter such as reading, writing, and spelling by providing access for information and customizing display features (such as font, font size, highlighting, spacing, speeds, and page displays) (Dawson, Antonenko & Lane, 2018).

Mobile Applications as Assistive Technology

Mobile applications provide children with dyslexia a tool which helps them learn at a rate similar to children without reading difficulties (Lindeblad et al., 2016). AT "motivates the children and engages their attention while focusing on solving problems, improving their memory, their reading, and writing skills" (Skiada et al., 2014, p. 228).

Mobile Applications as AT in OT Practice

Implementation of AT can have a significant effect on quality of life, self-esteem, leisure, and relationships. It is important for occupational therapy (OT) practitioners to have up-to-date knowledge and additional training in current assistive technology to best support the client's needs (Roll et al., 2018).


Dragon Speak


Prizmo


SayHi


Easy Writer


iTranslate


LiveScribe Pen (LSP)

Conclusions and Limitations

Findings from the reviewed articles provide evidence pertaining to the benefits of mobile applications as an AT tool to improve overall reading performance in individuals with dyslexia. Additional randomized control clinical trials and observational studies of high quality are also needed. Longitudinal studies must be conducted to understand the long-term effects of such tools on reading literacy and comprehension from a holistic approach. Furthermore, more research should build on existing explorations of integrating universal design for learning, the development of mobile applications and ATs to assist individuals with dyslexia.

Implications to Practice

To understand the implications of mobile applications and occupational therapy intervention, more research is needed. Larger sample sizes are needed to be explored as well. The assessment and evaluation of specific training of AT for OT's have the potential to approach reading as an occupation in order to raise both performance and participation for individuals with dyslexia. Additionally, OTs collaboration with teachers and parents is essential to improve reading performance in children with dyslexia (Grajo & Candler, 2014).

References

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Further Information

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