The Impact of Interventions for Students with Disabilities

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Abstract

There are disabilities that children may have that impact their educational experience. Implementing interventions for children with various disabilities is crucial in helping them succeed. This literature review summarizes interventions for reading (i.e., fluency, comprehension, dyslexia) and math (i.e., dyscalculia) at both the elementary and middle school levels. Additionally, interventions for children with Autism Spectrum Disorder and visual impairments will be reviewed. Based on the current literature, recommendations for future research and implications will be provided.

Reading Interventions

Fluency

Elementary School

- Reading pieces multiple times as an intervention is effective for increasing the ability for better fluency (Barber et al., 2018; Begeny et al., 2009; Marr et al., 2020).
- When students with disabilities are provided with repeated readings and repetition of words, as well as when teachers use pre-teaching skills, these students have benefited (Kim et al., 2017).

Middle School

- Great Leaps Reading Program was successful to improve fluency (Spencer & Manis, 2010).
- Repeated readings are most critical for helping increase fluency among middle school students (Lancaster & Reisener, 2013; Powell & Gadke, 2018).
- Students engaged in working with decoding skills and decode at an accurate level improved fluency (Seiler et al., 2019).

Comprehension

Elementary School

- Comprehension interventions that combine work with fluency can be beneficial for increasing both comprehension and fluency (Kim et al., 2017; Spencer & Manis, 2010).
- Combining instructional methods such as repeated readings with technology is effective for improving comprehension (Barber et al., 2018; Al Otaiba et al., 2018).

Middle School

- Interventions that focus on instruction connected to being able to pull out main ideas and sum up what has been read is effective for helping improve comprehension (Fogarty et al., 2014; Solis et al., 2012).
- When teachers use instructional methods that combine comprehension and morphological skills, it has been found to be effective for improving students' comprehension skill level (Goodwin, 2015).

Dyslexia

Elementary School

- Interventions that use information children can apply to real world situations, teaching children how to monitor their own work, and how to work individually can help increase students' desire to improve (Kanani et al., 2017; Partanen et al., 2018).
- Students who were provided the opportunity to engage in using a map generated for thinking was effective (Faramarzi et al., 2017).

Middle School

- Interventions that use phonics and phonological skills has helped students' to be able to use more vocabulary (Ring & Black, 2018; Van der Kleij et al., 2017).
- Interventions that involve using sounds of letters, blending, separating words, and other factors of producing words was found to be effective for learning English (Tam & Leung, 2017).

Math Interventions

Dyscalculia:

Elementary School

- One-to-one instruction has been shown to increase their mathematical skills (Monei & Pedro, 2017).
- Interventions that include working with skills related to numerical data at an early age and using principles of instruction has been demonstrated as effective for improving math skills (Doabler et al., 2012; Nelson & McMaster, 2019).

Middle School

- Using a combination of instruction through video and visuals has been effective for students (Hughes, 2019).
- The intervention that uses *Solve It!* instruction has been found to help students increase their mathematical abilities (Krawec et al., 2012; Montague et al., 2012).
- An intervention that has been helpful for improving students' math scores on pre- and post-tests is through teaching self regulated strategy development when working with math problems (Cuenca-Carlino et al., 2015).

Autism Spectrum Disorder Interventions

Picture Exchange Communication System

- An effective intervention for promoting language in the early years is The Picture Exchange Communication System (Hill & Flores, 2014).
- The Picture Exchange Communication System was effective for increasing social interaction and following peers (Boesch et al., 2013; Thiemann Bourque, 2016).

Technology

- Providing children with tablets or computers allowed children to have an effective mode of communication for initiating requests (Bauminger- Zviely et al., 2013; Hill & Flores, 2014).
- An effective app that allows for improvement with skills related to language and socialization in the TOBY application (Parsons et al., 2019).

Animal Interventions

- Riding horses as a form of therapy has been found to help children gain social skills and communication skills (Anderson & Meints 2016; Borgi et al., 2016; Lanning et al., 2014).
- Use of dogs for promoting improvements with children's' communication skills helps to minimize behaviors that can be repetitive and provides children with a sense of safety (Burrows et al., 2016; Stevenson et al., 2011).

Visual Impairment Interventions

Physical Activity

- Interventions with physical activity such as sports and various programs can help students use different functioning skills (Cervantes & Porretta, 2013; da Cunha Furtado et al., 2015).
- Interventions such as camps with activities consisting of drama, sports and more were effective for helping improving psychological health (Elsman et al., 2019).

Animal Interventions

- Teaching students about ways to care for dogs and information about dogs has been shown to be beneficial for children (Bruce et al., 2015).

Assistive Technology

- Schools with more access to assistive technology that has been empirically tested had significant benefits for students' learning (Kelly, 2019; Kelly & Smith, 2019).

Future Directions

- Find ways to help students with disabilities perform better on standardized testing.
- Create interventions that can combine related reading issues to improve both issues with one intervention.
- Look into various technological apps that may help enhance skills and learning among students with reading disabilities.
- Find applications using technology that can help students to improve if they have dyscalculia.
- Examine the differences between Picture Exchange Communication System and technology to see if they can be combined to help students with Autism Spectrum Disorder.
- Look more specifically into other animals besides horses and dogs that may help children with Autism Spectrum Disorder improve their social and communicative skills.

Implications

- Train current teachers and school personnel on how to implement interventions for students with disabilities.
- Teacher preparation programs should include coursework aimed at teaching the implementation of assistive technology for students with Autism Spectrum Disorder, interventions for those who are visually impaired, and programs to assist students with reading or math disabilities.
- School administration and teachers should be trained to be able to use animal interventions in the school setting for those with Autism Spectrum Disorder and Visual Impairments.
- Funding should be available to school districts to purchase technology and buy applications for technology that can help students with various reading deficits, math deficits, Autism Spectrum Disorder, and Visual impairments.
- Teacher Preparation programs should include clinical training in a variety of settings where students may have disabilities.
- All educational professions should provide training with Braille.