

Effects of the Use of the Educreations Application in the Reading Comprehension of an Adolescent with Autism and Speech Delay

Abstract

Comprehension is one of the most challenging aspects of reading for people with autism spectrum disorder (ASD). The present paper describes an action research that intends to investigate the effect of the use of the Educreations application in the reading comprehension of a 19-year-old boy with ASD and speech delay.

Problem Statement

Autism Spectrum Disorder (ASD) is a neurological disorder of unknown origin that affects 1 in 68 newborns, according to the Center for the Disease Control and Prevention's latest estimate from March 2014. ASD impairs cognitive abilities, speech development and social behavior in a range of degrees from moderate to severe.

Reading is one of the most difficult subjects for students with ASD. Even for those children that are able to decode words and understand the meaning of vocabulary, achieving comprehension is one of the most difficult tasks. The onset of puberty and social acceptance issues that affect typical teenagers adds another dimension to the problems of readers with ASD. Research efforts need to focus on the area of reading comprehension practices applicable to secondary students with ASD, particularly those who are significantly below grade, to help this growing sector of the student population (Ricketts, Jones, Happe, & Charman, 2013).

Research Purpose

The purpose of this study was to investigate the effects of the use of the "Educreations" application in the reading comprehension of an adolescent with autism who read at significant low level, using the visual and auditory tools of the application as sensory input.

Literature Review

Accommodations to Increase Comprehension of Readers with ASD

Research by Mims, Hudson and Browder (2012) investigated the effectiveness of the use of graphic prompts to indicate the answer to "Wh" questions in the read aloud of adapted grade level biographies. The participants were four middle school teenagers with ASD and moderate to severe developmental disabilities. The study showed that the students maintained and generalized comprehension skills to other biographies. The present action research will use the

Educreations application to teach the student the use of graphic prompts to answer “Wh” questions.

Kagohara et al. (2013) developed a systematic review of 15 studies containing results for 47 participants whose ages ranged between 4 and 27 years old, diagnosed with ASD and/or other disabilities. The studies reported experimental data on the use of iPad[R] and similar technologies used to teach a new skill. The findings coincided on the positive effects of these technologies as teaching tools for students with disabilities. This review supports the use of the iPad[R] as intended in the present action research.

Cihak, Fahrenkrog, Ayres, and Smith (2010) investigated the use of video modeling to teach transitional behaviors via iPod[R] in general education classroom settings to students with severe ASD and intellectual disabilities. The participants were three boys and one girl whose ages ranged between 6 and 8 years old. The investigation showed that the use of handheld devices increased the accessibility of video accommodations, which confirms the potential of the Educreations application as a teaching tool.

Research Methodology

The participant was a 19-year-old boy with ASD and speech delay, whose Woodcock - Johnson reading comprehension test scores were at first grade level. The Educreations application was used to introduce visual clip art icons presented in a graphic organizer to illustrate the meaning of “Wh” comprehension questions. The teacher recorded her voice on the application explaining the meaning of each icon, and how to use them to answer the “Wh” questions step-by-step. After reading a short passage from the Edmark reading series, the student had the written and recorded instructions available in the application. He was able to consult these instructions prior to answer a questionnaire containing “Wh” comprehension questions.

The intervention consisted in two weekly 30-minute sessions during eight weeks. It included four stages: a pretest to use as baseline during the first session, two sessions providing modeling to the student, five sessions providing assistance and corrective feedback, five sessions where the student used the intervention independently to answer the questions and the teacher provided corrective feedback, three sessions where the student answers the questions using the intervention independently and provided a brief explanation on how he uses the Educreations application to the teacher.

The researcher used three data sources analyzed as follows: (a) pre and post intervention “Wh” questionnaires administered in each session to collect number of correct answers and analyze if the student comprehension improved through time, (b) an observation chart to document number of missing steps in each session to determine any existing relationship between the student’s mastery of the use of the intervention in the application and the number of correct answers and (c) a student self check list administered every two weeks to check if the student was able to classify correctly his answers under the categories place, time, or person to analyze if the student’s understanding of the answers improved through time.

Results

The comparison of the answers of the pre and post intervention “Wh” questionnaires showed an increase in the number of correct responses after the intervention. These increases were interpreted as growth in the student’s comprehension due to the intervention.

The analysis of the correlation between the number of correct intervention’s steps and the number of correct answers the student obtained using the intervention showed that the student increased his reading comprehension, when he increased his proficiency of the intervention.

The student's self-check lists showed how the participant understood the meaning of his answers. His work samples evidenced that he improved the classifications of his answers throughout the course of the intervention. These findings implied an improvement in his reading comprehension due to the action research.

In conclusion, these findings supported the use of the Educreation application as a tool to increase the reading comprehension of this student.

Implications

This intervention may be extremely useful as a teaching tool because the Educreations application is a versatile tool, easily adaptable to the text of other subjects, and the iPad[R] is a highly popular device, socially accepted and relatively affordable in comparison with other software with similar properties.

References

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