Chapter 38

The Use of Computer-Based Technologies to Increase the Academic, Behavioral, and Social Outcomes of Students with Autism Spectrum Disorders in Schools:
Considerations for Best Approaches in Educational Practice

Frank J. Sansosti
Kent State University, USA

Mary Lynn Mizenko
Kent State University, USA

Allison Krupko
Kent State University, USA

ABSTRACT

In recent years, the number of students with Autism Spectrum Disorder (ASD) in both special and general education classrooms has increased substantially. As such, there may be no greater challenge facing educators than planning for the education of this growing population. One method of instruction that appears to hold great promise for educating these students is the use of computer-based technologies. The purpose of this chapter is to: (a) provide a brief overview of the contemporary research regarding the use of computer-assisted instruction and mobile devices for improving the academic, behavior, and social outcomes of students with ASD within school-based contexts and (b) to provide educators with strategies for collecting data to promote accountability. Taken together, the intent is to call attention to the evidence that supports the use of computer-based technologies for students with ASD in schools, raise awareness of those strategies that appear to be the most effective for such students, and assist service providers in providing defensible education.

BACKGROUND AND SIGNIFICANCE

Within the past two decades, the number of individuals identified as having an autism spectrum disorder (ASD) has increased substantially. Traditionally, ASD was considered a low-incidence disability, occurring in approximately 1 in 1,600 live births (Lotter, 1967). However, the most recent estimates indicate that ASD may occur in as many as 1 in every 50 births (Centers for Disease Control and Prevention; CDC, 2013). Given these increases, it follows logically that state departments of education also have reported significant increases in the number of students with ASD receiving special education and/or related services. The Individuals with Disabilities Education Improvement Act (IDEIA, 2004) requires each state's Department of Education (DOE) and the U.S. Department of Education to record specific childhood disabilities, including ASD, for each school year. From 1992 (the first year autism statistics were reported) to 2011 (the most recent data available), the total number of students provided with special education under the autism category of IDEA grew from 15,580 to 458,209, a cumulative increase of 2,953% (Data Accountability Center; DAC, 2013). From the available information, it is likely that all educational agencies have observed significant impacts in the number of students with ASD.

While there has been an increase in the number of students receiving special education services under the IDEA category of autism, it is possible that the increase is an underestimate of the actual frequency of services necessary to support the education of students with ASD. This is due to the fact that some children with classic autism and most children with more higher-functioning ASD are not included in IDEIA counts because they attend private schools, are home schooled, or do not meet a state's eligibility criteria for the autism disability category. For example, Bertrand et al. (2001) found that 66% of students with classic autism and only 50% of students with higher functioning ASD had autism listed as their special education designation. In a similar study, Yeargin-Allsopp et al. (2003) discovered that only 41% of children with ASD were receiving special education services under the autism category of IDEIA. This underreporting may be due to the fact that states have different eligibility criteria for the autism disability category and that children with higher functioning ASD may not qualify for any services. Because of their elevated cognitive and language abilities children with higher functioning ASD may receive services under a different IDEA category such as other health impaired, specific learning disability, or emotional disturbance, if they qualify for any services at all. Regardless of which special education category is chosen, the potential exists that children with ASD represent a large underserved student population (Safran, 2008).

Aside from the issue of the exact number of students served, placement in general education settings continues to be a predominant service delivery issue for students with ASD. Data from the Office of Special Education Programs (OSEP; 2011) suggests that children with ASD are served increasingly in inclusive classroom settings. Specifically, participation of students with ASD in the general education curriculum (defined as more than 80% of the day) increased at a faster pace than that of all disability categories combined. Whereas only 4.8% of students with ASD were included in 1991-1992, nearly 34% were in general education for 80% or more of their day in 2006-2007, representing a growth rate of 580%. Aside from the reported statistics, educators frequently comment on the increasing numbers of students with ASD characteristics within general education classrooms (Myles, 2005). With this in mind, developing and implementing effective programming for students with ASD becomes a challenge for educators.

16 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/the-use-of-computer-based-technologies-to-increase-the-academic-behavioral-and-social-outcomes-of-students-with-autism-spectrum-disorders-in-schools/151236

Related Content

All the Class Is a Stage
Abhilash Ashokand Asha Priya (2020). *International Journal of Curriculum Development and Learning Measurement (pp. 11-18).*
www.irma-international.org/article/all-the-class-is-a-stage/247107

Investigating English Language Learners' Reading Gains From Technology-Based Instruction
Kelly M. Torres, Aubrey Stattiand Caroline A. Morales (2022). *International Journal of Curriculum Development and Learning Measurement (pp. 1-16).*
www.irma-international.org/article/investigating-english-language-learners-reading/290385

Video Use in Teacher Education: Transition from a Teaching Tool to an Assessment Tool
Ashley Hodgeand David D. Carbonara (2016). *Special and Gifted Education: Concepts, Methodologies, Tools, and Applications (pp. 1048-1067).*
www.irma-international.org/chapter/video-use-in-teacher-education/151243

E-Mind-Mapping Strategy for Better EFL Middle School Student Vocabulary Use Skills
Eman Abdelhamid (2022). *International Journal of Curriculum Development and Learning Measurement (pp. 1-11).*
www.irma-international.org/article/mind-mapping-strategy-better-efl/290383

Evolution of a Course for Special Education Teachers on Integrating Technology into Math and Science
Irina Lyublinskaya (2016). *Special and Gifted Education: Concepts, Methodologies, Tools, and Applications (pp. 323-350).*
www.irma-international.org/chapter/evolution-of-a-course-for-special-education-teachers-on-integrating-technology-into-math-and-science/151211