

Chapter 12

Fostering Inclusion of Children and Adolescents With Autism Spectrum Disorders in Daily Settings Through Technological Supports: A Selective Overview

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ABSTRACT

This chapter emphasizes a selective overview of the newest empirical contributions available in the literature within the last decade (i.e., 2008-2019) regarding the use of assistive technology for the inclusion of children with autism spectrum disorders (ASD) in daily settings. According to the including and excluding criteria, 40 studies were retained and grouped in five main categories, namely (1) communication skills, (2) adaptive and/or social skills, (3) life skills, (4) challenging behaviors, and (5) academic performance. The first aim of the chapter was to outline strengths and weaknesses of the aforementioned studies. The second objective of the chapter was to provide some practical and illustrative examples of assistive technology-based programs aimed at the integration of children with ASD in daily settings. Finally, the third purpose was to discuss the findings pointing out some useful guidelines for future research and practice. Results were fairly positive, although some failure occurred. Clinical, educational, psychological, and rehabilitative implications were critically discussed.

DOI: 10.4018/978-1-7998-7053-1.ch012

INTRODUCTION

Children with autism spectrum disorders (ASD) may have communication, intellectual, emotional, social, and motor impairments, with isolation, passivity, withdrawal, which may be deleterious for their social image, desirability and status with negative consequences on their quality of life (Felce & Perry, 1995; Koegel, Matos-Freden, Lang, & Koegel, 2012; Matson & Sturmey, 2011; Palmen, Didden, & Lang, 2012). Moreover, they may exhibit repetitive and stereotyped behaviors, self-injuries, aggression (Farmet et al., 2015; Matson & Jang, 2014). Additionally, they are frequently described with intellectual disabilities (ID) and attention deficits hyperactivity disorders (Newman, Leader, Chen, & Mannion, 2015; Stratis & Lecavalier, 2015). In fact, they may pose serious difficulties regarding their management within daily settings such as home, school and rehabilitative or medical contexts (Feldman, Blum, Gahman, & Shults, 2015). In fact, their positive inclusion may be significantly hampered. Accordingly, the aforementioned clinical conditions could be a threat to conventional programs (e.g., sensorial stimulation), increasing caregivers' burden (Lin, 2015). One way to overcome this issue is the use of assistive technology (AT) (Barnard-Brak, Thomson, Wei, & Richman, 2014).

For instance, a participant with ASD and ID exposed to a microswitch-based program (i.e., a basic form of AT-based intervention) may access autonomously to brief periods of stimulation (e.g., 5-10 seconds) by manipulating a wobble (i.e., a ball) microswitch fixed in front of him/her with the hands. Subsequently, the participant may learn to decrease hand mouthing through a cluster-microswitch with an optic sensor embedded in an adaptive frame properly fixed under the lips (Stasolla et al., 2014c). Furthermore, a second participant with ASD and high functioning (e.g., Asperger syndrome) may increase his/her constructive engagement and/or positive participation by behavioral interventions through the use of an AT-based program (Stasolla, Perilli, & Caffò, 2014). Finally, a participant may use an IPAD to communicate his/her needs to a caregiver (Kagohara et al., 2013). All the aforementioned interventions may: (a) have beneficial effects on participants' mood, (b) reduce significantly caregivers' s burden, (c) support their inclusion of children and adolescents with ASD in daily settings, and (d) be favorably endorsed by experts in the field through social validation assessments (e.g., parents of children with developmental disabilities, psychologists, practitioners, caregivers and teachers) (Lancioni, O'Reilly, et al., 2006; Lancioni, Singh, et al., 2006; Stasolla, Caffò, et al., 2015).

Accordingly to the above, the first aim of this chapter is to provide the reader with a selective overview of the newest empirical evidences available in the last decade (i.e., 2008-2019) concerning AT-based programs for children and adolescents with ASD in the electronic databases such as SCOPUS, PUBMED, ERIC, PSYCHINFO. Microswitch-based programs, computer-based programs, speech generating devices-based programs, vocal output communication aid-based programs focused on the increasing of adaptive responding and reducing challenging behaviors by ASD participants with different levels of functioning will be systematically reviewed. Additionally, their improved academic performance was considered. The second objective of the chapter will be to outline the effects of such AT-based programs on participants' mood (i.e., indices of happiness), constructive engagement (i.e., positive participation) and staff, or caregivers/parents assessment (i.e., social validation). The third goal of the chapter will be to emphasize strengths and weaknesses of the reviewed studies. Finally, the chapter will critically argue on the educational, practical and psychological implications of the selective overview, underlining some useful guidelines for the future research and practice within this specific framework.

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