Chapter 53

Enhancing Life Skills of Children and Adolescents With Autism Spectrum Disorder and Intellectual Disabilities Through Technological Supports:
A Selective Overview

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ABSTRACT

This chapter provides the reader with the newest empirical contributions available on the use of assistive technology-based interventions aimed at enhancing life skills of children and adolescents with autism spectrum disorders and developmental or intellectual disabilities. A selective overview along the last decade was carried out. Eighteen studies were reviewed, and 155 participants were involved. Five main categories of studies were identified, namely (1) emotional regulation, (2) communication skills, (3) academic performance, (4) social inclusion, and (5) challenging behavior. Results were fairly positive, although occasional failures occurred. Clinical, educational, psychological, and rehabilitative implications of the findings were critically discussed. Some useful guidelines for future research and practice were highlighted.

INTRODUCTION

Children and adolescents diagnosed with autism spectrum disorders (ASD), may be frequently socially, communicatively, and emotionally impaired. They may present stereotypic and tantrum behaviors, self-injuries, isolation, passivity, and withdrawal. Learning difficulties and lack of positive interactions with their surrounding world and/or environment are usually embedded. Furthermore, individuals with ASD may have few adaptive responses available in their own behavioral repertoire and fail to constructively engage while dealing with functional activities of daily life accordingly. Because they are commonly unable of positively participate in occupational tasks once enrolled in everyday life (e.g., community, medical rehabilitative and/or medical centers, school classroom), their social desirability, image, and status are significantly hampered, implying deleterious outcomes on their quality of life (Chen, Leader, Sung, & Leahy, 2015; Felce & Perry, 1995; Konst & Matson, 2014; Matson & Sturmey, 2011; Stasolla, Damiani, & Caffò, 2014; Stasolla, Perilli, & Damiani, 2014). Additionally, students with ASD may be affected by intellectual disabilities (ID). Either they evince low, moderate, or significant ID and developmental delays (DD), they continuously depend on caregivers' aid. Because their clinical conditions are relevantly compromised, the challenging behaviors above described may negatively interfere with daily regular functioning (e.g., monitoring and management of executive functions, emotional regulation, academic achievements, inclusion in daily contexts). Moreover, ASD and ID population may pose serious problems to conventional interventions (e.g., stimulation sessions and speech therapies). Thus, the self-determination and independence of children with ASD and DD may be relevantly compromised (Matson & Jang, 2014; Politte, Howe, Nowinski, Palumbo, & McDougle, 2015; Sanchack & Thomas, 2016). One way to tackle the aforementioned issues is to resort on assistive technology-based (AT) interventions (Lancioni & Singh, 2014; Lancioni, Sigafoos, O'Reilly, & Singh, 2012; Smith, Atmatzidis, Capogreco, Lloyd-Randolfi, Seman, 2017; Stasolla, Boccasini, & Perilli, 2017).

For example, a child with ASD and ID may be included in a microswitch cluster technology-based intervention for occupational activities. Thus, the participant may be constructively engaged in a functional task as sorting objects in a container while the mouthing behavior is progressively reduced. The dual simultaneous objective of improving a positive behavior and reducing the challenging response is pursued through the microswitch cluster technology (i.e., two optic sensors fixed in a container available in front of the child and on the child's chin in an adapted frame respectively constitute the cluster, see Stasolla, Perilli et al., 2017).

Furthermore, a participant with ASD and ID may be introduced and taught to learning activities administrated through cardboards or a touch screen support. The support preference was assessed in a choice evaluation and quantitative analysis was performed on items concerning both communicative skills and challenging behavior (Brunero, Venerosi, Chiarotti, & Arduino, 2019). Moreover, a student who attended the primary school and was aged of 7.5 year with a diagnosis of moderate intellectual impairment with communication delays was exposed to a two-part six-week study with a starting twenty-one days suitability training followed by a twenty-one days longitudinal effectiveness training. Both training included the implementation of a socio-emotional program, twice per day, with an assistive smart-glasses-based technology. Educators filled pre-intervention and post-intervention *Aberrant Behavior Checklist* (ABC) at the beginning of the suitability training and weekly during the effectiveness training. Primary data evidenced enhancements in the ABC sub-scales (Vahabzadeh et al., 2018).

The above described programs may: (a) have positive outcomes on participants' happiness, (b) decrease relevantly caregivers' s burden, (c) corroborate the integration of children and adolescents with

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