

Chapter 7

Technology–Aided Interventions to Reduce Challenging Behaviors for Individuals With Autism Spectrum Disorder

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ABSTRACT

Individuals with autism spectrum disorder (ASD) display a variety of challenging behaviors, such as tantrums, aggression, stereotypy, and disruption. Challenging behaviors can have a serious negative impact on the development of social relations, in the learning process, and education. To this aim, there is a need for appropriate interventions in order to improve the quality of life of individuals with ASD. This chapter aims to provide data with regard to different types of interventions and technological tools used for the reduction of challenging behaviors of students with ASD. Functional communication training with the use of speech-generating devices, video self-modeling, self-monitoring with the use of technological devices, and social stories presented in electronic form reflect types of interventions used for challenging behavior reduction. Research data indicate that technology-aided interventions are generally effective in reducing challenging behaviors of students with ASD.

INTRODUCTION

Autism Spectrum Disorder (ASD) is characterized by deficits in social and communication skills as well as restrictive and repetitive behavioral patterns (American Psychiatric Association, 2013). Delays in these skills make individuals with ASD prone to the development of challenging behaviors (Horner et al., 2002; Jang et al., 2011). The term “challenging behaviors” is used to describe a number of actions that are likely to harm the individuals themselves, other people such as carers (parents or professionals), educators, or even other members of the community and cause harm to objects (Emerson & Einfeld, 2011; Murphy et al., 2009). Challenging behaviors involve a range of actions like aggression, self-injury,

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disruption, stereotypy, destruction of objects, and inappropriate behavior in public (Murphy et al., 2009; O’Nions et al., 2018). Challenging behaviors incite children and adolescents with ASD to difficult or hazardous circumstances (Jang et al., 2011). They are likely to cause an individual to be excluded from participating in community services and they generally have an effect on the quality of life of individuals with ASD (Matson et al., 2008).

Furthermore, challenging behaviors tend to increase with age. When there is comorbidity with mental retardation, challenging behaviors are more pronounced in adolescence and during the early adult life and gradually decline (Emerson & Einfeld, 2011). Individuals with ASD participate in more than one challenging behavior (Murphy et al., 2009). This has a negative impact on the development of social skills, in the learning process and education (Horner et al., 2002; Jang et al., 2011; Matson et al., 2010). To this end, educators and those involved in the educational program of students with ASD, are required to have the necessary knowledge and be able to carry out the appropriate interventions in order to reduce them. Challenging behaviors that are exhibited by students with ASD may play an essential role for individuals and it is important for educators to have the ability to recognize the functions that those behaviors serve (Lancioni et al., 2012).

The use of new technologies has offered greatly in the field of education and the way in which educators engage students in the educational process, adapt the curriculum, and impart knowledge (O’Malley et al., 2014). In the general education classroom, the education of individuals with ASD takes place at the same time as their typically-developing peers and makes it necessary to use tools that facilitate the smooth adaptation of students with ASD in this context (Ramdoss et al., 2012). Their use is equally important in the special education classroom, as it supports the adjustment of students with ASD to the teaching process and improves their autonomy. This is due to the fact that the instructions are given by the device and thus limit the educator’s involvement (O’Malley et al., 2014).

Specifically, technological devices such as laptops, tablets, and smartphones, are portable and can be used in different settings and conditions (Chia et al., 2018). This can be considerably helpful both for the individuals and the people directly involved in the educational program of children or adolescents with ASD. The indicated devices are easy to operate and can be used effortlessly and immediately by the student with ASD (McNaughton & Light, 2013). Computer-based instruction can help educators tailor educational materials to the needs and abilities of the student with ASD (Ramdoss et al., 2012). It has become apparent that prompts and instructions given through technological devices, such as computers and tablets, are more easily accepted by the child or adolescent with ASD, improve their attention and involvement in academic work and thus make it possible to reduce challenging behaviors (Ramdoss et al., 2012; Rosenbloom et al., 2016).

The aforementioned devices take advantage of the preference of an individual with ASD in visual stimuli and provide multisensory elements, that can be decidedly helpful for pupils with ASD, as they can increase their involvement in different tasks and activities, potentially leading to a major reduction in the challenging behaviors (Chia et al., 2018; Crutchfield et al., 2015; Soares et al., 2009). Technological tools provide a predictable and free of social demands environment, in which children and adolescents with ASD can feel safe. This way they can acquire the socially accepted behavior with less effort. It has been observed that the use of devices that make situations predictable and provide desirable ways of dealing with situations, can lead to the establishment of the appropriate behaviors and consequently to the reduction of undesirable behaviors by individuals with ASD (Schreibman et al., 2000).

In view of the preceding, new technologies should be integrated into the educational program of students with ASD. New technologies can serve as a useful tool for facilitating both the work of educators

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