

Chapter 46

Incorporating Mobile Technology into Evidence-Based Practices for Students with Autism

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ABSTRACT

This chapter discusses how mobile technology can contribute to the quality of life of children with autism across their school years and through the transition to adulthood. Mobile technology has the potential to support students not just at school, but also across all environments in and throughout their lives. There are a number of educational practices and strategies that have been identified as having a strong evidence base to effectively support students with autism. The theoretical framework underpinning this chapter is the Universal Design for Learning (UDL), which prescribes that these practices be integrated into instruction from the outset to ensure equal access and participation of all students in the classroom. Case studies of students on the autism spectrum with diverse needs and during different stages of their lives (from the school years to the transition to adulthood) are used to demonstrate the benefits of incorporating mobile technology into evidence-based educational practices for people with autism.

INTRODUCTION

Although mobile technology can be traced back to the early 1990's with the introduction of the personal digital assistant (PDA), it greatly increased in popularity in the early 2000's, through the global widespread adoption of various forms of Smartphones and later, in 2010, with the introduction of the iPad and other digital tablets. Tablets are now the preferred method of accessing the Internet by users globally (White,

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2013), and it is predicted that there will be over 1.4 billion smartphones in use worldwide by December 2013 (Leonard, 2013). Interestingly, there has been widespread adoption of mobile devices by parents and teachers as teaching and learning devices, particularly for students with autism (Rothschild, 2011).

Although mobile devices and their applications were not originally created with education and/or students with autism in mind, that sort of repurposing is not new and is theoretically supported by Universal Design for Learning Theory (UDL). Universal Design for Learning is an educational framework based on research in the learning sciences that guides the development of flexible learning environments (CAST, 2011a). The theory of Universal Design for Learning is defined as:

a set of principles for curriculum development that give all individuals equal opportunities to learn. UDL provides a blueprint for creating instructional goals, methods, materials, and assessments that work for everyone--not a single, one-size-fits-all solution but rather flexible approaches that can be customized and adjusted for individual needs.

CAST (2011b) describes the three principals that guide UDL: (a) provide multiple means of representation; (b) provide multiple means of action and expression; and (c) provide multiple means of engagement. These three principles, and the UDL Model are now widely accepted and recommended as part of different teaching models, especially inclusive practice, as they promote accessibility from the start, rather than as a set of accommodations added later on. Accessibility is preferred over accommodation because accommodation is usually triggered by a request, which can take time. It may also require extra effort in the form of time and resources, or moving to a special location, which is exclusionary (Edyburn, 2010).

MOBILE TECHNOLOGIES

Tablet devices, such as the iPad, and their corresponding applications have the potential to support students with autism by increasing the accessibility of educational materials, enhance the presentation of concepts, improve social skills, as well as giving students a way to communicate in different modalities. The devices are also widely recognized and used by students of all ages, making them more readily adopted by students and adults with autism and their peers. Many schools are already widely employing the devices, making it a matter of just adding the right applications to make classroom instruction more accessible to all students.

There is scant research to support the use of mobile technology as teaching and learning tools for students with autism, but popular literature in magazines, newspapers and online media (blogs, vlogs, etc.) detail the many ways that tablet computers and other mobile devices have had a positive impact on the lives of people with autism. These accounts, as well as the few research studies that exist, focus on incorporating mobile technology into practices that already have a strong evidence base, such as: augmentative and alternative communication (AAC).

Gentry, Wallace, Kvarfordt, and Lynch (2010) examined the efficacy of PDAs as task management tools for 22 high school students with autism. The students were trained by occupational therapists to use the PDAs to manage tasks, and after eight weeks the students demonstrated significant improvement on an occupational performance measure, had learned to use the devices' reminder alarms and could independently program the devices. All of the students reported that the devices had improved their independence in performing functional activities, and had, in fact, improved their satisfaction with

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