Chapter 13

A Collective Case Study on Two Speech and Language Impaired Learners with Autism:
The Instructional Implications of a Hybrid Applied Behavior Analysis (ABA) and iPad App–Infused Model

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ABSTRACT

Various treatment methodologies have been demonstrated to be efficacious in instructing learners with autism; however, there is no universal method of treatment, since no single treatment method has been proven to ameliorate the multifaceted symptoms of autism entirely (Lovaas, 1987). This chapter discusses the results of a qualitative study that investigated the functional validity and instructional implications of the implementation of a potential hybrid Applied Behavior Analysis (ABA)/Applied Verbal Behavior (AVB) and Apple tablet technology-infused model of instructional intervention targeting the initial language development of two speech- and language-impaired learners with autism. Research was conducted in an attempt to determine whether the hybrid model was operational and effective in teaching verbal behavior skills. Data collection results and observational anecdotal notes indicate that the Apple iPad-infused hybrid model of instruction was operational and more effective in teaching verbal behavior skills than the traditional paper-based instructional method. Furthermore, participants of the study were able to successfully generalize the hybrid model's Discrete Trial Training (DTT) discriminative stimulus targets in diverse natural settings.

INTRODUCTION

Autism spectrum disorder (ASD) has become the fastest growing serious developmental disability in the United States today. Diagnoses continue to climb resulting in staggering prevalence rates within society. Experts estimate that more than 2 million individuals in the U.S. and tens of millions worldwide are affected by ASD, a 10 to 17 percent annual increase in recent years (Autism Speaks Inc., 2013). The Centers for Disease Control and Prevention (CDC) identify 1 in 68 American children as being on the autism spectrum. Pervasive autism diagnoses have led to an epidemic of speculation regarding the treatment of autism.

Disability features of ASD, otherwise known as autism, include harmful, aversive, and atypical deficits in health, mobility, cognition, social communication, social interaction and behavior, which range in level of severity. Each diagnosis of autism is different and characterized by an individualized unique set of symptoms that pose great barriers in the lives of invidivuals with autism. Symptomatic impediments result in adverse effects that negatively impact one's quality of life, thereby impeding the process of attaining social autonomy. Thus, generating an essential need to investigate and develop more innovative and effective instructional treatment methodologies. Emergent literature examining the effects of incorporating technology into existing instructional treatments for learners with autism indicate that using mobile technology and digital computer-based tools, such as tablets, is advantageous to learners with autism, as well as those charged with their care and instruction. (Kagohara, Sigafoos, Achmadi, O'Reilly & Lancioni, 2012). In order to thrive in today's technology-based society, it is plausible to suggest that learners with autism gain beneficial digital literacy skills.

Several decades of research studies investigating the effects of various instructional methodologies on learners with autism have been documented in the literature; however, applied behavior analysis (ABA) is the only scientifically validated method of instructional treatment for learners with autism backed by over 40 years of documented evidence-based practices (Howard, Sparkman, Cohen, Stanislaw, & Green, 2005). One of the most common and popular instructional methods of ABA that are employed by educational practitioners among learners with autism is discrete trial training (DTT), which is based upon the tenets of ABA (Prizant & Wetherby, 1998; Charlop-Christy & Carpenter, 2000; Miguel, Carr, & Michael, 2002). Applied verbal behavior (AVB) is another evidence-based practice that is based on the principles of ABA that focuses on shaping verbal behavior and the functional communication skills of learners with autism by teaching the primary verbal operants (i.e. mand, tact & echoic) (Skinner, 1957).

Recent technological studies regarding digital instructional modalities among learners with autism emphasize the potential advantages of tablets, such as Apple iPads, which are programmed with touch screens, user friendly components, and navigational properties facilitating ease of use (Kagohara et al., 2012). Furthermore, a growing amount of literature supports the movement to supplement and incorporate mobile technology, such as Apple iPads, into the existing instructional treatments for learners with autism due to their flexibility, dynamic makeup, and applications (apps) that contain highly motivating and appealing multi-sensory features (Kagohara et al., 2012). Stimulating and interactive iOS technology software apps specifically designed for speech and language impaired learners with autism are increasingly being used as augmentative alternative communication (AAC), digital assistive technology (DAT) and speech generating devices (SGDs).

Since communication impairments are one of the most significant and aversive traits of autism, often resulting in the manifestation of

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