



Acquisition of sentence frame discrimination using the iPad™ as a speech generating device in young children with developmental disabilities



Elizabeth R. Lorah^{*}, Ashley Parnell, D. Renee Speight

University of Arkansas, Fayetteville, AR, USA

ARTICLE INFO

Article history:

Received 10 September 2014

Accepted 11 September 2014

Keywords:

Autism Spectrum Disorder

Developmental delay

Speech generating device

iPad™

Tact

ABSTRACT

This study evaluated the use of the iPad™ and application Proloqu2Go as a speech generating device (SGD) for the acquisition of a tact (labeling) repertoire in three preschool aged children with Autism Spectrum Disorder or developmental delay. Additionally, discrimination between picture icons and sentence frames were investigated. Using a five second time delay, with full physical prompts, participants were taught to label four items using the carrier phrases “I see” and “I have”. Following the acquisition of those frames in isolation, training on discriminating between those frames was introduced. The results indicate that the training procedures were effective for this purpose, thus contributing to the already existing literature on the use of handheld computing devices as SGD.

© 2014 Elsevier Ltd. All rights reserved.

1. Introduction

According to Cafiero and Meyer (2008), 33–55% of children with autism spectrum disorder (ASD) do not develop the ability to communicate in order to meet their basic needs. Thus, individuals diagnosed with ASD who demonstrate communication deficiencies are unable to request basic wants and needs. Because of the measurable deficits in communication, which exist for many diagnosed with ASD, the Centers for Disease Control and Prevention cite a failure to engage in social communication as a key indicator of the disorder (American Psychiatric Association, 2013). As Cafiero and Meyer (2008) point out, one possible cause for the observable communication deficiencies for individuals with ASD is that they are primarily visual learners, yet a typical communication repertoire is developed auditorily. Thus, interventions created for children with ASD must include a communication component in order to aid the child in development of functional communication skills to interact and thrive in society.

One method of intervention used to support children with ASD in communicating effectively is Augmentative and Alternative Communication (AAC). Cafiero and Meyer (2008) describe AAC as any means by which a person can learn the skills associated with communication and then use those skills to engage in conversations or ensure the meeting of his or her needs. There are many different strategies that can be utilized to support communication of individuals with ASD through AAC, including, sign language, picture exchange, picture exchange communication system (PECS), and speech generating devices (SGD). Each of the above described methods has been utilized to support children with autism in acquiring mand (or requesting) and tact (or labeling) repertoires. As technology continues to grow and expand, a shift in research has occurred to

^{*} Corresponding author.

E-mail address: lorah@uark.edu (E.R. Lorah).

determine the possible results when utilizing speech-generating devices to implement communication interventions. In a review of 35 studies utilizing SGD for communication, Rispoli, Franco, van der Meer, Lang, and Camargo (2010) found 86% demonstrated positive outcomes. Of that 86%, 17 studies showed an increase in manding for preferred food, toys, people, etc. for individuals with developmental disabilities utilizing SGD. Thus, implementation of interventions which utilize a SGD for children with ASD are effective at enabling a child to develop basic communication skills, such as, manding and tacting.

Within recent years, many studies, including those cited by Rispoli et al. (2010), have been conducted to assess the acquisition of a mand repertoire for children with ASD through the use of speech-generating devices. According to Skinner (1957), manding refers to vocalizations that are in the form of a request or demand. A mand repertoire supports children in making requests or demands to meet their needs when in a state of deprivation, which functions as a motivating operation. A multitude of studies conducted in the last ten years have found that the use of the iPad™ as a speech-generating device is an effective method in teaching children with ASD to mand (e.g., Achamadi et al., 2012; Couper et al., 2014; Dundon, McLaughlin, Neyman, & Clark, 2013; Hill & Flores, 2014; Lorah et al., 2013; Sigafoos et al., 2009; Strasberger and Ferreri, 2013; Strasberger & Ferreri, 2013). In addition, many of the above studies determined not only were the majority of their participants with ASD able to make and maintain requests with the iPad™ as a SGD, but most of the participants actually preferred utilizing SGD when selecting between SGD, PE, or manual signing (Couper et al., 2014; Lorah et al., 2013; van der Meer, Didden et al., 2012a; van der Meer, Kagohara, et al., 2012b; van der Meer, Sutherland, O'Reilly, Lancioni, & Sigafoos, 2012c). The extensive research evidence suggests that implementing communication interventions that include the iPad™ as a SGD component are highly effective at supporting acquisition of a mand repertoire for children diagnosed with autism spectrum disorder.

Despite the vast amount of evidence supporting the use of SGD with children diagnosed with autism to increase manding, very limited research has been conducted to determine whether or not SGD is equally effective at aiding in the acquisition of a tact repertoire. Tacting is another verbal operant illustrated by Skinner (1957) in *Verbal Behavior*. Tacting is quite simply described as labeling or naming objects, events, persons, etc. Two studies conducted by Kagohara et al. (2012) demonstrated a significant increase in the ability for two children with ASD to name pictures with a speech-generating device. However, despite the implications of this study, little research has been conducted since to further the findings in terms of tact repertoire acquisition with SGD.

Another AAC method utilized with children with autism spectrum disorder is picture exchange communication system (PECS). Picture exchange communication system consists of six phases which are taught in succession in order to support acquisition of communication skills. The first two phases involve teaching the PECS user what to do with the pictures or the meaning of the pictures, while phase three works to facilitate discrimination between the pictures (Bondy, 2012). Phase 4 of PECS teaches the user the basic structure of a sentence, "I want. . . banana" (Bondy, 2012). Finally, the fifth and sixth phases of PECS are concerned with spontaneous manding, responding to questions, and tacting. The method has been highly researched with over 100 publications, most of which demonstrated positive outcomes for the development of communication skills (Bondy, 2012). One study in particular confirmed the acquisition of communication skills with PECS through all phases of the protocol for three children with autism (Charlop-Christy, Carpenter, Le, LeBlanc, & Kellet, 2002). The study also found that the participants showed a dramatic increase not only in aided communication, PECS, but speech utterances as well (Charlop-Christy et al., 2002).

However, even though a vast amount of literature exists to support the use of PECS for teaching communication skills to individuals with ASD, very little research beyond the above mentioned study has shown effective implementation of all six phases of the PECS protocol (Bondy, 2012; Hart & Banda, 2010). Yet, the higher phases of PECS, including phases 5 and 6, support a person in the ability to discriminate between sentences in order to communicate effectively. The basic skills required to interact communicatively require individuals to listen and discern different meanings of different sentence structures in order to respond appropriately to a question or spontaneously comment on an observation. For instance, the sentence frames "I have. . ." and "I see. . ." share two completely different observations with a listener. If a person is unable to discriminate between simple sentence structures like those described above, then he or she is unlikely to engage in appropriate communication by answering questions or commenting without prompting. Thus, it is necessary that practitioners continue to not only research PECS through all six phases of the protocol, but to also study alternative methods, such as, utilizing speech-generating devices, to teach spontaneous manding and tacting repertoire acquisition in order to encourage sentence discrimination for effective communication.

This study sought to address limitations of prior research by determining the effectiveness of employing the iPad™ and application Proloqu2Go as a SGD to support (a) acquisition of a tact repertoire for children with ASD and (b) the discrimination between two sentence frames by teaching the children to discern between the sentence frames "I have. . ." and "I see. . .".

2. Method

2.1. Participants

As presented in Table 1, three preschool aged children, two male and one female, participated in the research study. Each of the participants attended a specialized learning center for children with developmental disabilities, five days per week, for seven hours per day. Additionally, each of the participants demonstrated emerging vocal behavior (5–10 words), a limited mand repertoire (manding in one-to-two words/phrases), and an emerging tact repertoire (could label five items when

Download English Version:

<https://daneshyari.com/en/article/10317122>

Download Persian Version:

<https://daneshyari.com/article/10317122>

[Daneshyari.com](https://daneshyari.com)