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ScienceDirect

Procedia - Social and Behavioral Sciences 141 (2014) 138 – 142

Procedia
Social and Behavioral Sciences

WCLTA 2013

Tablet-Based Communication And Children With Multiple Disabilities: Lessons From The Clinical Setting

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Abstract

The advent of tablet-based augmentative/alternative communication systems affords speech-language pathologists and their non-verbal clients' new opportunities in the clinical setting. This descriptive case study explores how two clinicians introduced one such system to six children with disabilities, and follows the children's progress toward greater communication. Case study methodology and qualitative data collection of field notes, frequency counts and interviews allowed for deep exploration of the phenomenon in its natural environment. Four themes emerged from our data analysis: 1) practical issues exist with the hardware and software, 2) the speech-language pathologist serves as expert guide/facilitator, 3) end-user motivation and engagement are high, and 4) positive communication outcomes are attainable. Strategies for therapeutic implementation stemming from these findings are reported.

Selection and peer-review under responsibility of the Organizing Committee of WCLTA 2013.

Keywords: Augmentative alternative communication, disabilities, tablet-based computing, speech;

1. Introduction

Augmentative and alternative communication (AAC) continues to advance technologically to meet the needs of individuals with speech and language impairments. Dedicated speech-generating devices of the 1980s required users to type what they wanted to say word by word, a task impossible for most non-verbal children. AAC has since evolved to include much more efficient symbol-based systems making it easier for the user to produce quick responses because of the implementation of pictures and icons (Chapple, 2011). Apple's iPod and iPad technologies have further revolutionized the AAC landscape in terms of accessibility, ease of use and affordability.

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Selection and peer-review under responsibility of the Organizing Committee of WCLTA 2013.
doi:10.1016/j.sbspro.2014.05.025

High quality, full-featured applications like Assistiveware's Proloquo2Go, Sono Flex by Tobii Technology and Legend's OneVoice are mainstay software to insure optimal tablet-based communication. Although there is a paucity of research on the effectiveness and best practises of iPod/iPad-driven AAC, Proloquo2Go (P2Go) is currently the most studied application, as it has been on the market for several years. The application, which runs on the iPad, iPodTouch and iPhone, is category-based and offers over 14,000 symbols to build a vocabulary that meets the needs of the user. Other innovative features include research-backed vocabulary organization, natural-sounding children's voices, advanced word-prediction, and extensive customization options. P2Go can provide visual supports using photographs as well as symbols, and the app can be programmed on-the-fly, as new vocabulary is encountered. The individual can communicate with P2Go via discreet words or through full sentence construction, making this application very versatile and accessible to a wide range of users.

The convergence of full-featured, symbol-based AAC apps like P2Go, loaded on the iPad, in particular, has afforded children with multiple disabilities unprecedented means to communicate. The iPad, as compared to the iPod and iPhone platforms, is large enough that individuals with gross and/or fine motor impairment can access the device. The customization options of P2Go allow the speech/language pathologist (SLP) to introduce the device with only one or two symbols on the screen, an ideal presentation for a child with cognitive impairment to begin to learn cause and effect and simple communication. A small body of research exists that supports P2Go usage, at least on the iPod, with children and youth with autism and developmental disabilities. Kagohara, van der Meer, Achmadi and colleagues (2010) successfully used a behavioural intervention to enable an adolescent with autism to learn the basics of P2Go on an iPod. Advanced usage of P2Go on the iPod was achieved by two students with autism in an extension of this study, using prompting, prompt-fading and differential reinforcement (Achmadi, Kagohara, van der Meer, et al., 2012). In a similar study, van der Meer, Kagohara, Achmadi and colleagues (2011) used graduated guidance, time delay and differential reinforcement to teach iPod and P2Go usage to two individuals with developmental disabilities. These investigations, although informative, address very specific behavioural interventions for teaching students with disabilities how to use iPod-based speech AAC, and do not attempt to capture or describe the phenomenon of iOS/P2Go training in its entirety. We were interested in exploring the overall dynamic between SLP and clients (in this case, children and youth with multiple disabilities) as the iPad and P2Go were introduced, taught and reinforced. We sought to identify and understand current and best practises using iPad and P2Go in the clinical setting, especially when introducing these technologies to children with cognitive and physical impairments. We wondered, can these children improve their communicative abilities by using iPads and P2Go? How might this happen and how quickly?

Ultimately, the purpose of this descriptive case study was to observe SLPs as they introduced non-verbal children with multiple disabilities to the iPad and P2Go in the clinical setting, and to identify effective practise and potential obstacles surrounding this new AAC. We chose case study methodology because we were intent on understanding how an SLP might go about teaching children with disabilities the necessary skills to use the iPad and P2Go to communicate. We were curious as to where to begin, how to progress, and what barriers to learning may occur in using iPads in the clinical setting. According to Hancock and Algozzine (2006), 'through case studies, researchers hope to gain in-depth understanding of situations and meanings for those involved' (p.11). This was precisely what we wanted to do—understand the interactions and dynamics between a child with multiple disabilities and his or her SLP as together they began using an iPad-driven AAC system.

2. Method

Two speech-language pathologists at a mid-western university's children's hospital recruited six participants for this study. All participants met the following criteria: (a) school aged individuals between the ages of 4 and 18, (b) limited expressive language abilities precluding communication of daily wants and needs and self-expression (as determined by a certified speech language pathologist), (c) little to no exposure to the iPad and Proloquo2Go, (d) sufficient motor skills to operate the AAC communication system, (e) necessary poverty level to meet the financial criteria for iPad donation from a Hospital-related volunteer organization. Because our research was designed to explore the phenomenon of iPad/P2Go introduction in the clinical setting, we considered the two SLPs as co-participants. Both were females, with 4-6 years of experience as clinicians. The SLPs were new to working with iPads, but had some experience working with P2Go on other iOS devices. Both had several years' experience introducing other means of AAC (low tech and dedicated speech generating devices) to children with multiple disabilities.