Chapter 10
Are Speech-Generating Devices Viable AAC Options for Adults with Intellectual Disabilities?

Dean Sutherland
University of Canterbury, New Zealand

Jeff Sigafosso
Victoria University of Wellington, New Zealand

Ralf W. Schlosser
Northeastern University, USA

Mark F. O’Reilly
The University of Texas at Austin, USA

Giulio E. Lancioni
University of Bari, Italy

ABSTRACT
Many adults with intellectual disabilities have severe communication impairments and are therefore potential candidates for the use of speech-generating technologies. However, there may be reluctance to prescribe speech-generating devices for adults with intellectual disabilities in the absence of evidence demonstrating that such persons are capable of learning and interested in using this technology. In this chapter, the authors provide an overview of intellectual disability and the use of speech-generating technologies for adults with intellectual disability. This overview is followed by a systematic review of intervention studies that have sought to teach the use of speech-generating technologies to adults with intellectual disability. An overview and review of this type may help to inform and advance evidence-based practice in the provision of communication intervention for adults with intellectual disability.

DOI: 10.4018/978-1-61520-725-1.ch010
INTRODUCTION

Imagine an adult who has failed to acquire the ability to speak and remains unable to communicate his/her most basic wants and needs; an adult unable to request a drink when thirsty or a snack when hungry; an adult unable to inform others when in pain or ill; an adult unable to enjoy the simple pleasure of conversing with loved ones. There are literally millions of such adults. They are to be found among those diagnosed with intellectual disability (Carr & O’Reilly, 2007; Sigafoos, O’Reilly, & Green, 2007). Would the resulting communicative handicaps experienced by these millions of people be reduced if they could be taught to use speech-generating devices (SGDs)?

For the purpose of this chapter, SGDs are defined as any switch-operated, electronic, or computer-based communication aid that produces either digitized (i.e., recorded) or synthesized speech output. Such devices are typically used to augment unintelligible speech or provide an alternative mode of communication in cases where natural speech has failed to develop sufficiently. When used for these purposes, SGDs represent a mode or system of augmentative and alternative communication (AAC). AAC and SGDs are more fully described in a subsequent section of this chapter.

In this chapter, we attempt to determine whether adults with intellectual disabilities can benefit from SGDs by systematically reviewing intervention studies that have sought to teach the use of SGD to these individuals. A review of this type may help to inform and advance evidence-based practice in the provision of communication intervention for adults with intellectual disability. Our chapter begins with overviews of intellectual disability and the use of AAC by adults with intellectual disability.

DEFINING AND DESCRIBING INTELLECTUAL DISABILITY

The term intellectual disability covers a range of more specific disorders and syndromes, all of which share several common diagnostic criteria (Carr & O’Reilly, 2007; Matson, 2007). The essential feature of intellectual disability (or mental retardation) is “significantly sub-average general intellectual functioning . . . accompanied by significant limitations in adaptive functioning . . .” (American Psychiatric Association, 2000, p. 41). The communication domain is one area of adaptive functioning that is often significantly limited in persons with intellectual disability (Sigafoos et al., 2007). Epidemiological and assessment studies consistently show that people with intellectual disabilities often present with major speech, language, and communication problems (Abbeduto, Evans, & Dolan, 2001). The nature and extent of their communication problems depends, in part, on the etiology and severity of intellectual disability (Duker, van Driel, & van Bercken, 2002; Sigafoos et al., 2007).

In terms of etiology, there is some research suggesting that certain intellectual disability syndromes are associated with distinct and possibly unique communication profiles. Duker et al. (2002), for example, compared the communication profiles of individuals with Down syndrome to individuals with Angelman syndrome. They found that individuals with Down syndrome tended to have greater deficits in the communication functions related to requesting and rejecting/protesting in comparison to echoic or imitative functions. The opposite was true of individuals with Angelman syndrome. These data highlight the importance of etiology in designing communication interventions for individuals with intellectual disability.

Intellectual disability is a heterogeneous condition. It is therefore possible that promising interventions for one etiological group, such as communication interventions involving the use of SGDs, may prove unsuitable for another.
Related Content

Recognizing Prosody from the Lips: Is It Possible to Extract Prosodic Focus from Lip Features?
www.igi-global.com/chapter/recognizing-prosody-lips/31076?camid=4v1a

The Role of Textual Graph Patterns in Discovering Event Causality
Bryan Rink, Cosmin Adrian Bejan and Sanda Harabagiu (2012). Applied Natural Language Processing: Identification, Investigation and Resolution (pp. 334-350).
www.igi-global.com/chapter/role-textual-graph-patterns-discovering/61057?camid=4v1a

Question Answering and Generation
www.igi-global.com/chapter/question-answering-generation/61039?camid=4v1a

Departing the Ontology Layer Cake
Abel Browarnik and Oded Maimon (2015). Modern Computational Models of Semantic Discovery in Natural Language (pp. 167-203).
www.igi-global.com/chapter/departing-the-ontology-layer-cake/133879?camid=4v1a