Building Evidence-based Practice in AAC Display Design for Young Children: Current Practices and Future Directions

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Abstract
Each time a practitioner creates or modifies an augmentative and alternative communication (AAC) display for a client, that practitioner must make a series of decisions about which vocabulary concepts to include, as well as physical and organizational features of the display. Yet, little is known about what factors influence the actual decisions and their outcomes. This research examined the design factors identified as priorities by speech-language pathologists (SLPs) when creating AAC displays for young children (age 10 years and under), and their reasons for the selection of these priorities. An online survey gathered ratings and comments about the importance and relevance of 14 AAC display design factors, as well as the current design practices of SLPs. Results indicated that some decisions were supported by existing research evidence, such as choosing vocabulary, collaborating with key stakeholders, and supporting partner modeling. Other decisions highlight areas for future research, including use of visual scenic display features, symbol background color, and supports for motor planning.

Keywords: Clinical practice; Display design; Survey; Augmentative and alternative communication

Introduction
Individuals with complex communication needs often rely on augmentative and alternative communication (AAC) to participate in communication interactions. An AAC system encompasses a variety of methods to support communication, such as speech generation, sign language, communication boards, and speech-generating devices (Kleier & Mirenda, 2013). Techniques that utilize tools outside of the body, such as a communication board with graphic symbols or a computer programmed with voice output, are called aided AAC. Substantial evidence suggests the use of AAC interventions increases language development with individuals with a variety of communication disabilities (e.g., Ringer & Light, 2007; Dinger et al., 2006; Romski & Sevcik, 1994).

Once a system is selected, AAC intervention requires more than taking the device out of the box and handing it over to the individual. One of the challenges facing practitioners such as speech-language pathologists (SLPs), special education teachers, and occupational therapists is creating an aided AAC system that maintains an appropriate balance between the benefits of the communication afforded by the system, and the costs of learning how to use it (Brokkenhaus, 1991). Achieving this balance requires determining the needs and abilities of an individual, and using those characteristics of the individual to drive the selection and design of the system (Light & McNaughton, 2016). For example, depending on the individual’s visual or motor access abilities, the size of the symbols may or may not be an important feature to manipulate (Kennedy & Kennedy, 2005).

A 2006 survey examined SLPs’ perceptions on what contributes to success and abandonment of AAC technology (Johnson, Inglis, Jones, & Ray, 2006). SLPs reported that an important match between the individual and the system is one factor that promotes greater success with the device. Intrinsic abilities such as motor, cognitive/linguistic, literacy skills, and sensory perceptual skills must be assessed and compared to external features of systems to determine the best match.

With the great variety of aided AAC technologies available, matching external features to intrinsic abilities is no small task. Ideally, practitioners are combining their practical knowledge and experience with available evidence to inform a trial-and-error, feature-matching approach. However, such an approach may increase the time it takes an individual to reach competence with a system. Rather, if there are design decisions that follow specific patterns, these could potentially reduce the number of trials needed to identify the best fit for an individual.

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Augmentative and Alternative Communication

Some children do not develop the ability to talk, often due to physical or cognitive impairments. Augmentative and alternative communication (AAC) offers these children a voice. One type of AAC uses pictures, arranged in a book or computer. Speech-language pathologists (SLPs) frequently design these tools. Using a survey, the current research sought to identify the decisions SLPs make as they create AAC displays for school-aged children. Participants report clinical practices consistent with existing evidence as well as practices that highlight opportunities for new research.