

Extended Abstract

Title: The Quality of the Evidence Supporting the Use of High-Tech AAC with People with IDD

Poster

Aim

Given the recent explosion of the use of mobile devices and “apps” to offer AAC, it is important to determine whether or not the use of these systems can be considered an evidence-based practice. Although AAC is widely used, existing research is unclear as to whom, under what contexts, and with what components they are effective, specific to intellectual/developmental disabilities (IDD) and autism spectrum disorder (ASD). The purpose of this presentation is to provide the results of a review of quality of the evidence related to the use of high-tech augmentative and alternative communication (AAC) among individuals with IDD, including ASD, and who have complex communication needs. The authors will share the results of a systematic literature review of the quality of the research designs of single-case experimental designs (SCEDs) and the quality of the evidence of the included articles.

Method

This review will include single-case experimental designs (SCEDs), which are more frequently implemented than large scale research to study impacts of interventions on individuals with low incidence disabilities (Kazdin, 2010). Our determination of whether or not these systems may be considered evidence-based practices will be based on recently released standards from professional organizations, governmental agencies (U.S.), and experts in SCED.

Recently, the *What Works Clearinghouse (WWC)* (Kratochwill et al., 2010) of the U.S. Department of Education, Institute of Education Science authored standards for evaluating the quality of design and evidence of effect of SCED research. These criteria have allowed for a cohesive approach to evaluating the evidence base for SCED research (Maggin et al., 2013). We have expanded on the *What Works Clearinghouse* (Kratochwill et al., 2010) standards to include evaluation of the literature based on the International Council for Exceptional Children’s standards, and other sources. We are collecting data on each experiment’s responsiveness to basic quality standards: systematic implementation of an AAC intervention, collection of sufficient interobserver agreement data, whether the design is such that a functional relation could be detected, and collection of a sufficient number of data points. Further, each experiment/study will be reviewed on a number of high-quality design indicators, including sufficient description of the setting and materials, the interventionist, the baseline and intervention procedures, and the outcome measures. Finally, we will determine the amount of data on generalization and maintenance of skills and on implementation of the AAC intervention with high treatment integrity (e.g., was the intervention implemented as expected). Then, the quality of the evidence will be investigated via visual analysis of the graphed data in each experiment, including the patterns of behavior in baseline and

intervention phases, patterns of improvement across phases, the number of demonstrations of effect, and the overall effects (e.g., weak, moderate, or strong).

Descriptive data will be reported as well. We will investigate the following client characteristics: disability category, chronological age, and communicative and intellectual functioning. Further, we will collect descriptive data on instructional protocol, implementer, and instructional context AAC mode, display type (e.g., static versus dynamic), and treatment dosage.

Results

We are currently extracting data to complete this systematic literature review and expect to have the results analyzed by the end of December 2015. To date, we have completed the abstract/title review, full text review, and the review of the quality of study designs on all included papers. Further, we have had every paper reviewed by a second rater at each stage. We are near completion of coding of each experiment/study. We expect to complete the variable coding by the end of October. We will begin reviewing for quality of the evidence beginning in early October and anticipate completion of the review by the end of November and to write a manuscript reporting the results by the end of February 2016, in plenty of time to prepare for this poster presentation. We have a strong record of conducting systematic reviews and meta-analyses and publishing them in a timely manner, as is evidenced by the first author's CV.

Preliminary results indicate that there are at least 33 single-case experimental articles on the use of high-tech AAC interventions that meet the minimum design quality standards. At least 7 of these articles included the use of current mobile app technology.

Given publication bias toward positive results and our preliminary review of the articles, we anticipate that most of the articles that have met the design standards or met them with reservations will meet the evidence standards as having moderate to strong evidence. Thus, it is likely high-tech AAC will meet the *WWC* standards as an evidence based practice, which require replication of evidence across ≥ 5 studies, with ≥ 3 different groups of investigators, and ≥ 20 single-case experiments. Currently, we have well over the minimum number of studies. Further, these studies were published by over 20 groups of investigators, meeting that standard. Finally, we have found over 60 single-case experiments that meet the minimum standards and that will be evaluated for quality of evidence. Given that our past systematic reviews have resulted in the majority of studies meeting the standards for at least moderate evidence, it is highly likely that high-tech AAC will meet the evidence standards for use with people with IDD.

Conclusion

We anticipate that high-tech AAC will meet the standards for at least moderate evidence, resulting in an overall determination that high-tech AAC is an evidence-based practice for use with individuals with ASD and IDD. If possible, we will further break down the evidence by communication apps versus traditional aided AAC and by participant characteristics (e.g., ASD versus IDD). Such an analysis would allow us to

provide more fine-grained recommendations for practitioners and caregivers regarding the use of particular modes with particular individuals. These evaluations remain to be conducted.

Declaration of Interest

The authors disclose they have no financial or other interest in objects or entities mentioned in this paper.



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