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Reading-related Phonological Processing Interventions for Individuals who use Augmentative and Alternative Communication (AAC): A Systematic Review of the Research

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Abstract
The purpose of this investigation was to conduct a systematic review to determine the effectiveness of reading-related phonological processing interventions designed to meet the needs of individuals with complex communication needs (CCN) who require augmentative and alternative communication (AAC). An extensive review of the literature including phonological awareness, letter-sound correspondences, and single-word decoding was conducted. A total of 22 intervention studies (24 experiments) met criteria for inclusion and advanced to the full coding and analysis phase of the investigation. Results reveal that individuals who use AAC with a wide range of disabilities and ages can learn phonological processing skills for reading. Studies utilized interventions that were modeled after the Accessible Literacy Learning curriculum, the Early Reading Skills Builder, the Nonverbal Reading Approach, storybook reading with focus on reading-related phonological processing skills, combinations of storybook reading with other approaches, and other approaches.

Methods
Inclusion Criteria: Studies published between 1980 - June 2018 in peer review journals such as a dissertation, or published or translated into English, provided intervention with a stated goal to improve reading-related phonological processing, reported data on phonological processing skills before, during, and/or after intervention, utilized a recognized research design or descriptive case studies, involved individuals who required AAC or utilized an AAC-based intervention.

Exclusion Criteria: Unpublished studies and studies which provided intervention exclusively to individuals who do not use AAC.

Search Procedures: Database, item-by-item table of contents, and author searches.

Intervention Studies were Coded for: Study identification, study design, participant information, independent and dependent variables, outcomes, and certainly of evidence.

Participants
A total of 93 participants were included in these studies. Ages ranged from 3 years, 6 months to 54 years.
- Participant's had the following primary diagnoses: Autism spectrum disorder (32), Down syndrome (6), cerebral palcy (22), Developmental delay (8), Other diagnoses (31).
- At least 53 participants had a primary or secondary diagnosis of intellectual disability.

Results Summary

Results revealed that individuals who use AAC with a wide range of disabilities and ages can learn phonological processing skills for reading.

References

Early Reading Skills Builder (ERSB)
The Early Reading Skills Builder (ERSB) is designed to help children with AAC and autism learn phonological processing skills. It provides guidance on how to produce the sounds and their oral formation. The Early Reading Skills Builder is a computerized intervention program popular in the UK that teaches the following skills: 1. Letter-sounds, 2. Blending, 3. Segmentation, 4. Decoding. This program requires the use of AAC to provide meaningful feedback and success. The program can be used to engage children in the given tasks.

Other Approaches
With the exception of Banajee (2007), Johnston et al. (2009), and Trinh (2016), other approaches for teaching these skills included various combinations of instructional methods. These studies evaluated phonological processing skills that were not explicitly taught during the intervention and were almost universally unsuccessful.