Reading-related phonological processing interventions for individuals who use augmentative and alternative communication (AAC): A systematic review of the research

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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 journal or as a dissertation, 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 Exclusion Criteria: Unpublished studies and studies which provided intervention exclusively to individuals who do not use AAC.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 certainty of evidence.

Participants
A total of 93 participants were included in these studies. Ages ranged from 3 years; 6 months to 54 years:
- Participants had the following primary diagnoses:
  - Autism spectrum disorder (32)
  - Down syndrome (6)
  - Cerebral palsy (22)
  - Developmental delay (8)
  - 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.

**Also importantly, successful studies taught in intervention the same skills later assessed.**

References

Intervention Studies

### Accessible Literacy Learning (ALL) Curriculum

The Accessible Literacy Learning (ALL) Curriculum utilizes explicit instruction methods to promote errorless learning through the use of:

1. Introduction
2. Modeling
3. Guided practice
4. Independent practice
5. Positive or corrective feedback

#### Early Reading Skills Builder (ERSB)

**The Early Reading Skills Builder (ERSB) started as GoTalk Phonics and then moved to the iPad as GoTalk Now with ERSB.**

ERSB teaches the following skills:

1. Letter-sounds
2. Blending
3. Decoding
4. Encoding
5. Comprehension

#### Storybook Reading

Storybook Reading uses Phonics Faces and Alphabet Stories to teach:

1. Letter-sound correspondences
2. Initial Phoneme Segmentation

**Phonic Faces provides guidance on how to produce the sounds and their oral formation.**

**Alphabet Stories emphasizes only a given letter.** As a result, the use of Phonic Faces is more effective than the use of Alphabet Stories.

#### Jolly Phonics

Jolly Phonics is a computerized intervention program popular in the UK that aims to teach the following skills:

1. Letter-sounds
2. Blending
3. Segmentation
4. Decoding

This program implements a game system to engage participants in the given tasks.

#### Other Approaches

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