Effects of an AAC App on Single-word Reading of Preliterate Preschoolers with Autism Spectrum Disorder

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Introduction

Benefits of Literacy Skills
• Strongly associated with educational achievement
• Enhance employment opportunities (Nearly 90% of the jobs in the US require functional literacy skills)
• Support the development of generative language and communicative competence for individuals who use AAC
• Facilitate personal expression & social relationships (e.g., texting, blogs, Facebook)
• Allow access to enjoyable leisure pursuits (e.g., reading, surfing the internet, accessing social media)

For individuals with autism spectrum disorder (ASD) who have complex communication needs (CCN)
• Expand communication options significantly
• Increase perceptions of competence
• Increase self-esteem

Barriers to Literacy Learning
• Eventually, children who use symbol-based AAC need to transition to an orthographically based system
• Currently no AAC apps to support this transition from the use of graphic AAC symbols to the use of orthographic text

Current AAC technologies/apps
Individuals with ASD & CCN who are non-literate typically use AAC systems/apps with picture symbols

Children do NOT learn these words.
• Text is provided above symbol, however the text is small and static
• Text may be provided in message bar, however it is displaced from its referent

Solution
AAC technologies to support the transition to literacy (T2L)

Transition to literacy (T2L)
• a software feature for AAC technologies/apps
• provides dynamic presentation of text with speech output when a picture symbol is selected
• provides a first step in the transition from use of picture-based AAC technologies/apps to literacy

Research Question
What is the effect of the T2L app with dynamically displayed text on the acquisition, maintenance, and generalization of single word reading by pre-literate preschoolers with ASD?

Participants
• 3 children diagnosed with Autism Spectrum Disorder
• 3-5 years old
• 3 Males
• All were pre-literate
• All attend a LEAP preschool
• Each classroom has 4 children with ASD and 8 children who are typically developing

Design
Single-subject across participants multiple probe design
Phases: baseline, intervention, generalization, and maintenance
a) baseline condition (prior to exposure to tablet technology);
 b) exposure to tablet technology with the AAC app;
 c) generalization (to new photographs of target words not used in intervention);
d) maintenance

Materials
10 words from Brown Bear book images from Brown bear book

% accuracy reading single words (matching written word to picture)

Exposure to T2L VSD app during storybook reading

Summary of Findings
The three students provide preliminary evidence that a software feature for AAC apps, including the dynamic presentation of text paired with graphics and speech output, positively impacts the single-word reading of pre-literate preschoolers with ASD.

Acknowledgments
This research was supported in part by NIDILRR Grant #90RE5017-01-00, and Grant #H133G070008 (The Penn State AAC Leadership Project) from the U.S. Department of Education...