Teaching Graphic Symbols to Children with Complex Communication Needs Through Video and Play

Andrea E. Huist, Ohio University   John W. McCarthy, Ohio University

Introduction

• Over 3.5 million individuals in the U.S. cannot use their natural speech to effectively communicate & require some form of augmentative and alternative communication (AAC) (Beukelman & Mirenda, 2005).
• Binger and Light (2006) showed increased prevalence of children who require AAC especially in the preschool population
• It is important to provide children with E.I. services and the skills needed to become effective communicators and facilitate language development.
• iDevices are being used with increasing frequency in AAC, but there is little empirically validated instructional material available (AAC-RERC, 2011)

Research Objectives

• To develop, implement and evaluate a program to teach ten visual representations of important early concepts to children who cannot use their natural speech to communicate the concepts verbally
• It was hypothesized:
  - that the developed program would be effective in teaching the targeted concepts
  - that using a direct instruction approach would reduce the learning demands of the participants and facilitate acquisition of the targeted concepts
  - that the format would be enjoyable and easy to implement with an iPad and a few other items

Methods/Procedures

• Single subject multiple baseline across subjects research design
• Participants: one male and one female child
• Ages: 4;3 to 4;6
• The dependent variable was the subjects' accurate identification of the targeted concept
• In each trial the subject was shown an array four symbols (one target concepts and three foils) for each of the ten targeted concepts
• Teaching Sequence
  • The targeted concept was presented using a short video scene
  • The child participated in a play activity mimicking a portion of the video
  • 3 concepts were taught in the first session, 3 in the second session and 4 in the final session
  • For concepts the child consistently confused with a foil, a match to sample paradigm was employed-allowing the child to receive feedback not provided during initial intervention sessions

Demographic Information for Participants

| Participant	Age	PPVT Standard Score	School Placement	Communication Modality	Diagnosis
James	4;3	95	Not currently attending	Natural Speech, Gestures, Facial Expressions	Developmental Apraxia of Speech, Expressive and Receptive language delay
Molly	4;6	67	Full-time integrated preschool	Total Communication (Signs and Words/Word approximations)	Down Syndrome, Expressive and Receptive language delay

Results
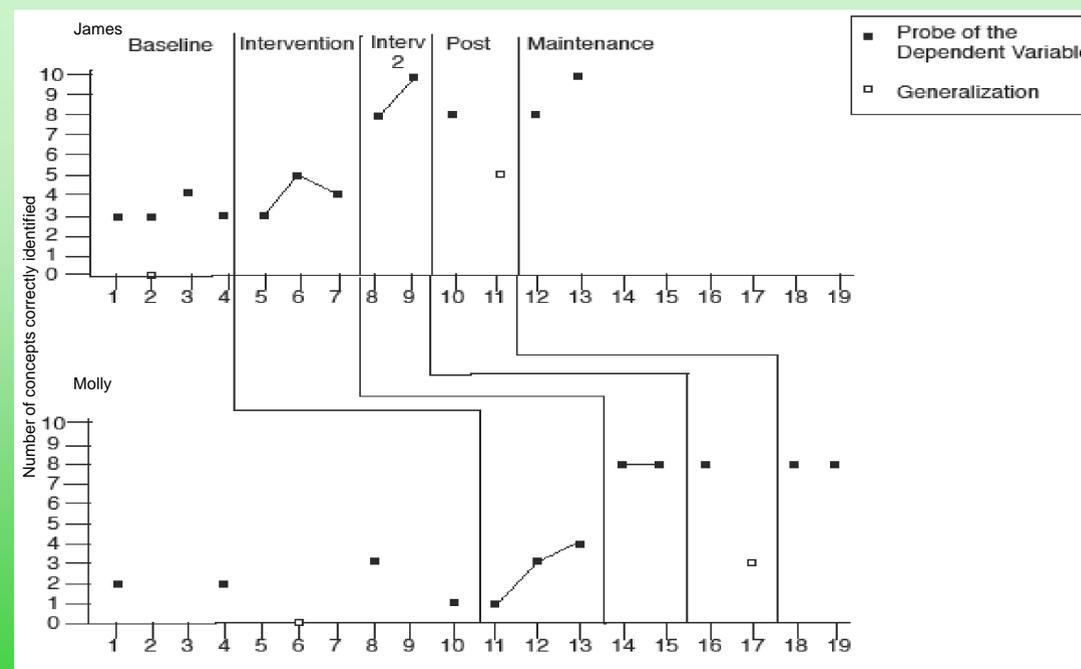
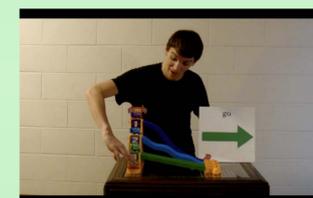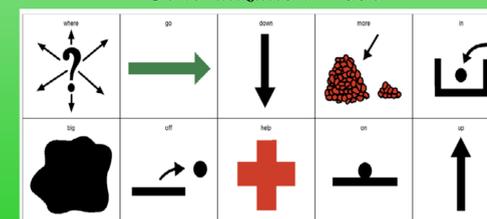## Dependent Variable Probe
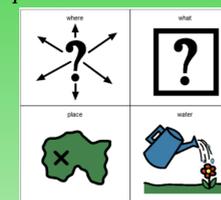
Target Concept-Where
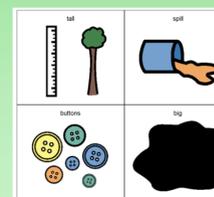
Target Concept-Big

Video Screen Shots

Generalization Probe

Discussion

• Results suggest that the program utilized in the study is effective in teaching the targeted concepts to children with complex communication needs.
• James demonstrated mastery of the concepts by meeting criterion (8 out of 10 correct) at a maintenance point two weeks post intervention and surpassing criterion at a maintenance point four weeks post intervention.
• James demonstrated generalization of concepts beyond chance.
• Molly demonstrated mastery of the concepts by meeting criterion at maintenance points two and four weeks post intervention.
• Both participants showed a greater increase in learning after receiving specific feedback in the match to sample paradigm.
• The appeal of the video instruction was effective in capturing and maintaining the children's attention.

Clinical Implications

• Results of the study suggest that a direct instruction paired with video and play activities can successfully teach the PCS for the targeted concepts.
• Pairing examples of actions related to the meanings of targeted concepts with the visual representation may facilitate symbol acquisition.
• The program may be effective for teaching additional visual representations.
• The videos offer alternative and potentially more instructional, yet fun, content for mobile devices.
• The videos were simple and relatively inexpensive to create and could be replicated and expanded upon in order to create a maintainable, easily accessible, database of instructional media.

References

AAC-RERC (2011). Announcing the AAC-RERC white paper on mobile devices and communication apps. *Augmentative and Alternative Communication,* 27(2), 131-132.

Binger, C. & Light, J. (2006). Demographics of preschoolers who require AAC. *Language, Speech, and Hearing in Schools,* 37, 200-208.

Buekelman, D.R. & Mirenda, P. (2005). *Augmentative and Alternative Communication: Supporting Children and Adults with Complex Communication Needs, Third Edition*. Baltimore, MD: Paul H. Brooks Pub. Co.

Acknowledgements