

# Targeting Expressive Language Skills with Children using AAC: Interventions for Peers & Children with Autism

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# BACKGROUND

- Risks to Development for Children who use AAC
  - At risk in all aspects of development, including language (e.g., Lund & Light, 2007).
  - Contributing factors (Ronski, Sevcik, & Adamson, 1997)
    - Intrinsic factors
      - e.g., cognitive and motor speech impairments
    - Extrinsic factors
      - e.g., lack of communication opportunities, lack of access to appropriate AAC options

# BACKGROUND

- Communication Characteristics of many *Children who use AAC* (e.g., Light, Collier, & Parnes, 1985):
  - Are passive communicators
  - Initiate few interactions
  - Respond infrequently
  - Produce a limited number of communicative functions
  - Use restricted linguistic forms
- Communication Characteristics of many *Communication Partners* (e.g., Light, Collier, & Parnes, 1985):
  - Take the majority of conversational turns
  - Provide few opportunities for communication
  - Ask predominantly Yes/No questions
  - Interrupt individuals using AAC
  - Focus on the technology, instead of the individual

# BACKGROUND

- **Language Intervention Techniques that Increase Early Expressive Communication Skills** (e.g., Binger & Light, 2007; Binger, Kent-Walsh, et al., in press; Kent-Walsh 2003; Rosa-Lugo & Kent-Walsh, 2008)
  - Aided AAC Modeling
  - Expectant Delay
  - Open-Ended/ WH- Question Asking
  - Increased Responsivity
- These steps have been incorporated into Interaction Strategies
  - Least-to-most prompting hierarchies

# Interaction Strategies

- Have been successfully taught to and used by:
  - Parents
    - Anglo
    - African-American
    - Latino
  - Educational assistants
    - Various cultural/ethnic backgrounds
- Have successfully been used with children ages 3-12 who have
  - Cerebral palsy
  - Childhood apraxia of speech
  - Developmental Delays
  - DiGeorge Syndrome/ Velo-Cardio-Facial Syndrome
  - Down Syndrome
  - Mental retardation
  - Prader-Willi Syndrome

(e.g., Binger & Light, 2007; Binger, Kent-Walsh, et al., in press; Kent-Walsh, 2003; Rosa-Lugo & Kent-Walsh, 2008)

# Interaction Strategies

- Have resulted in improvements in children's
  - Communicative Turn-taking
  - Communicative Functions
  - Length of Utterances
  - Semantic Diversity
  - Syntactic Complexity

(Binger, 2004; Binger & Kent-Walsh, in press; Kent-Walsh, 2003; Kent-Walsh et al., 2004; Rosa-Lugo & Kent-Walsh, 2008)

# Interaction Strategies

- **Clinical Implications**

- Instruction involves very little training time (1-4 hours)
- Instruction yields very positive changes in children's expressive communication
- Instruction yields high participant satisfaction

(Binger, 2004; Binger & Kent-Walsh, in press; Kent-Walsh, 2003; Kent-Walsh et al., 2004; Rosa-Lugo & Kent-Walsh, 2008)

# Interaction Strategies

- Have NOT examined
  - Teaching interaction strategy to typically-developing peers
  - Using interaction strategy with children with autism
  - \* Teaching interaction strategy in group instructional format



# Research Objectives

- (2) Evaluate the effects of teaching the interaction strategy to (adapted from Kent-Walsh, 2003):
- **Study I (Peer Study):** Typically Developing Peers of Children who use AAC
  - **Study II (Autism Study):** Speech-Language Pathology (SLP) Graduate Clinicians

# Research Objectives

- (2) Evaluate the impact of the program on the turn-taking of
- Study I (Peer Study): Children who use AAC
  - Study II (Autism Study): Children who use AAC (with Autism)

# Participants: Communication Partners

- **Study I (Peer Study):**  
**Peers of Children who use AAC**
  - 11 years of age
  - Enrolled in school with peer buddy reading program
  - No known speech, language, hearing impairments
  - Targeted strategy use < 25%

# Participants: Children using AAC

- **Study I: Children who used AAC**
  - Between 7;4 – 11;3
  - Diagnosis of Developmental Delay & Cerebral Palsy
  - Used aided AAC prior to study (SGD – Springboard & Dynavox Series 4)
  - Receptive vocabulary > 2 year developmental age equivalent level (PPVT & TACL)
  - Evidence of expressive symbolism
    - Speech, manual signs, graphic symbol use
  - Vision and hearing within functional limits
  - Taking turns <25% of pages during baseline sessions

# Participants: Communication Partners

- **Study II (Autism Study):**  
**Speech-Language Pathology Graduate Clinicians**
  - Currently enrolled in SLP graduate program
  - No known speech, language, hearing impairments
  - Targeted strategy use < 25%

# Participants: Children using AAC

- **Study II: Children with Autism**
  - Between 3;0 – 6;0
  - Diagnosis of Autism Spectrum Disorder
  - Not required to have prior AAC exposure
  - Receptive vocabulary of at least 10 words on MacArthur CDI
  - Evidence of expressive symbolism
    - Speech, manual signs, graphic symbol use
  - Adequate vision and hearing
  - Taking turns <25% of pages during baseline sessions

# Materials

- Storybooks used as context for intervention
  - Illustrated
  - Storylines appropriate for
    - Developmental level
    - Cultural background
    - Interests
  - Examples: Clifford, Dora, Little Critter
- AAC displays
  - 18-35 symbols per book (+ pop-ups for colors & #s)
  - Fitzgerald key
    - Wh- questions
    - Agents
    - Actions
    - Descriptors
    - Objects
  - Story-specific photographs and PCS
  - All displays available at [www.cathybinger.com](http://www.cathybinger.com)

# Procedures

- Design
  - Single subject, multiple probe research design
    - Study I: 3 Peer/Child using AAC dyads
    - Study II: 2 SLP graduate clinician/Child with autism dyads
      - Dyad #3 in progress
- Used strategy proven to promote turn-taking skills (Kent-Walsh & colleagues, 2003; 2004; Rosa-Lugo & Kent-Walsh, 2008)
- Same strategy used for Study I & Study II
- 4 skills (prompts) included in strategy
  - Aided AAC Modeling
  - Expectant Delay
  - WH- Question Asking
  - Increased Responsivity



# Interaction Strategy

On each double-page spread in each book read, you will RAA as follows:

READ + MODEL using AAC system

\*Pause\*

ASK + MODEL using AAC system

\*Pause\*

ANSWER + MODEL using AAC system

*RESPOND* to all  
communicative  
turns taken by  
[target student]  
at any time.

*RAA, RAA, RAA!*



- **Strategy Instruction Model** (Ellis et al., 1991; Kent-Walsh & McNaughton, 2005)
  - 8 steps to teach Interaction Strategy to
    - Peers
    - SLP graduate clinicians
  - Systematic practice using role plays
  - “Errorless learning” approach

# (1) Pretest & Commitment

- Pre-test (baseline) measurements of partners' spontaneous use of targeted strategy
  - “Read to your friend/client as you typically would”
  - Children have access to AAC.
- Overview of instructional program
- Participant commitment to intervention program (contract)

## (2) Strategy Description & Illustration

- Show Pre- and Post- Videos
  - Alternatively, demonstrate NOT using the strategy and then demonstrate using the strategy
- Discuss of Differences

# (3) Strategy Demonstration

- Role Plays
  - Instructor plays the Peer/SLP Graduate clinician
  - Peer/SLP Graduate Clinician plays the child
- Demonstrate at least 10 pages
- Start simple
  - First 3 pages: “Child” says nothing; Instructor demonstrates entire strategy
  - Systematically increase difficulty
    - Have peer/SLP Graduate clinician jump in at various points
      - Point to picture in book
      - Use speech/vocalizations
      - Use AAC device
      - Etc.

# (4) Verbal Practice of Strategy Steps

- “Let’s practice saying the steps involved in the strategy:
  - **Read**
  - **Ask**
  - **Answer**
  - **Wait & Respond**

# (5) Controlled Practice & Feedback

- Role Plays
  - Peer/Graduate SLP clinician as themselves
  - Instructor as the child
- Start simple
  - First 3 pages
    - “Child” says nothing
    - Peer/clinician goes through whole strategy
- Systematically increase difficulty
  - Next 7 pages or so
    - “Child” takes turns at various points in the hierarchy
  - Next set of pages
    - “Child” takes variety of different turns at various points in the hierarchy

# (6) Advanced Practice & Feedback

- Peer/clinician starts working with child (with instructor support, prompting & feedback)
- Peer/clinician practices with child until (s)he is:
  - Comfortable
  - Consistent
    - At least 20 pages
- Instructor monitors carefully
  - Ensure that peer/clinician consistently uses strategy



- **Intervention Phase**
  - Instructor (Jennifer or Cathy) no longer provide feedback
  - Intervention phase continues until
    - Child takes a turn on at least 80% of the pages
    - 3 consecutive sessions

# (7) Post-Test & Commitment

## (8) Generalization

- Review peer/clinician's mastery of strategy
- Discuss further/ extend future use of the strategy

# Measures

- Dependent Variables
  - Data for Peers/Clinicians
    - Percentage of instructional steps accurately followed during each story reading session
  - Data for Children using AAC
    - Percentage of pages on which children took a turn

# Studies I & II: Peers & Clinicians

- All learned strategy
  - 2-4 hours of instruction
- All used strategy consistently throughout post-instructional phases
  - Intervention
  - Generalization
  - Maintenance

# Studies I & II: Children

- Intervention
  - All met criterion (took turns on at least 80% of pages)
    - 2 – 4 hours of instructions (5 sessions with peers)
- Generalization
  - All generalized use of multi-symbol messages to new sets of storybooks
- Maintenance
  - All maintained use of multi-symbol messages for 2-8 weeks

# Discussion

- All peers/clinicians in Studies I & II
  - Learned strategy
  - Used strategy effectively
  - Maintained use of strategy over time
- All children in Studies I & II
  - Increased turn-taking
  - Generalized use to new storybooks
  - Maintained use over time

# Adaptations for Peers and Children with Autism

- Peer Instruction
  - Most likely need to provide information & have discussions about:
    - Having a disability
    - Technology use
    - Social issues
- Children with Autism
  - May need to provide
    - Schedule boards
    - Frequent breaks

# Directions for Future Research

- Adapt strategy
  - To provide group instruction\*
    - Further increase efficiency
  - For other contexts
    - E.g., activities of daily living, other school activities



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# QUESTIONS? CONTACT INFO

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Little Critter, Dora, & Clifford boards available at

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