

# Supporting Turn-Taking in AAC: Instruction for SLPs, Parents, & Peers

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# Overview

- *BRIEF* Background
- 3 Studies
  - Peers/Elementary School Children using AAC
  - Graduate SLP students/Children with Autism using AAC
  - Parents/Preschoolers using AAC (AAC Camp)
- Methods
- Results
- Discussion

# 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., 2008; Kent-Walsh 2003; Rosa-Lugo & Kent-Walsh, 2008)
  - Aided AAC Modeling
  - Expectant Delay
  - Open-Ended/ WH- Question Asking
  - Brief Verbal Prompting
  - 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

# Interaction Strategies

- Have successfully been used with children ages 3-12 with wide range of disabilities

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

- 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)

- **Have NOT examined**

- Teaching interaction strategy to
  - Typically-developing peers
  - Graduate SLP students
  - Groups of partners (instead of one-on-one instruction)
- Using interaction strategy with
  - Children with autism

# Research Objectives

- (1) Evaluate the effects of teaching the interaction strategy to:
- **Study I (Peer Study):** Typically Developing Peers of Children who use AAC
  - **Study II (Autism Study):** Speech-Language Pathology (SLP) Graduate Clinicians
  - **Study III (AAC Camp Study):** Groups of Parents of Preschoolers who use AAC



# Research Objectives

(2) Evaluate the impact of the program on

– Turn-taking skills of

- **Study I (Peer Study):** Children who use AAC (non-autistic)
- **Study II (Autism Study):** Children with autism who use AAC

– Multi-symbol message productions of

- **Study III (AAC Camp Study):** Preschoolers who use AAC (Mixture of disabilities)

# 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

- **Study II (Autism Study):**

Speech-Language Pathology Graduate Clinicians

- Currently enrolled in SLP graduate program

- **Study III (AAC Camp Study):**

Caregivers of Preschoolers who used

- Enrolled child and self in preschool camp program

# Participants: Children using AAC

- **Study I (Peer Study):** 3 Children who used AAC
  - Between 7;4 – 11;3
- **Study II (Autism Study):** 3 Children with Autism
  - Between 3;0 – 6;0
  - Evidence of expressive symbolism
    - Speech, manual signs, graphic symbol use
- **Study III (AAC Camp Study):** Preschoolers who used AAC

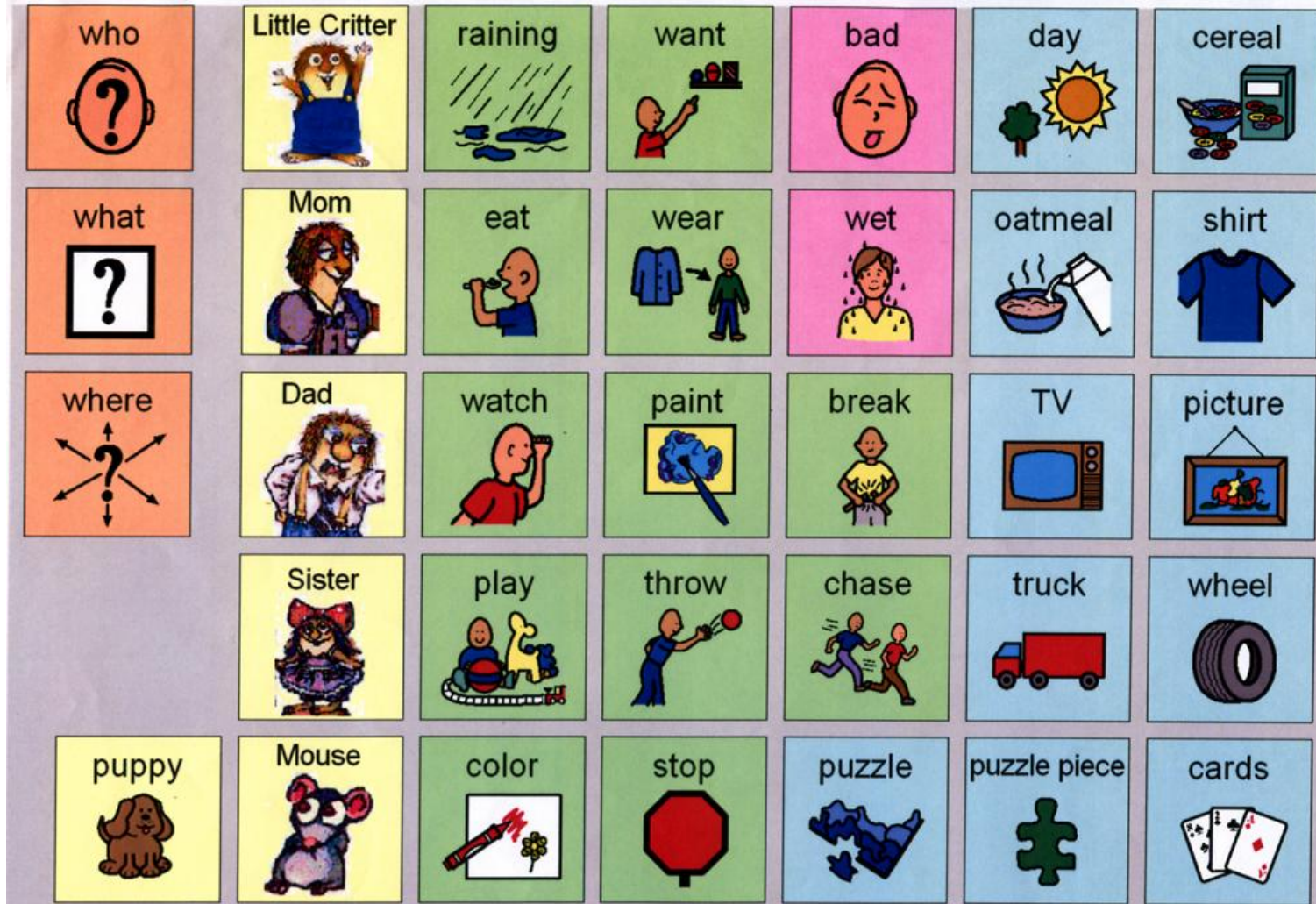
# Materials

- 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

# Little Critter

## “Just a Bad Day”

(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:** 3 SLP graduate clinician/Child with autism dyads
  - Within subjects group design
    - **Study III:** 10 Caregiver/Preschooler using AAC dyads

# Interaction Strategy

- Used strategies proven to promote turn-taking & symbol combinations (Binger et al., 2008; Kent-Walsh and colleagues 2003; 2004; Rosa-Lugo & Kent-Walsh, 2008)
- Similar strategy used for Studies I, II, & III
- 4-5 skills (prompts/responses) included in each strategy
  - Aided AAC Modeling
  - Expectant Delay
  - WH- Question Asking
  - Brief verbal prompt
  - Increased Responsivity

# Interaction Strategy: Studies I & II

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

READ + MODEL using AAC system

\*Pause\*

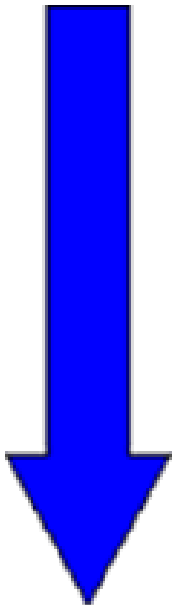
ASK + MODEL using AAC system

\*Pause\*

ANSWER + MODEL using AAC system

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

*RAA, RAA, RAA!*





# Interaction Strategy: Study III

## Interaction Strategy for Teaching Multi-Symbol Messages

Until the child uses 2 symbols, you will RAAP on each-page of the book:

“Elicitation” Component

“Response” Component

**READ + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**ASK + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**ANSWER + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**PROMPT** (BRIEF verbal prompt)  
“Show me two”

*\*Pause\**

*When the child uses  
2 or more symbols:*

***RESPOND*** by using 2 or more  
symbols



**RAAP, RAAP, RAAP!**

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

# (1) Pretest & Commitment

## (2) Strategy Description & Illustration

### (1) Studies I, II, & III

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

### (2) Show Pre- and Post- Videos; Discuss differences

# (3) Strategy Demonstration

Studies I & II: One-on-one instruction

Study III: Group instruction

- Role Plays
  - Instructor plays the Peer/SLP Graduate clinician/Caregiver
  - Peer/SLP Graduate Clinician/Caregiver 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/Caregiver 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”

- Studies I & II: One-on-one
  - Read
  - Ask
  - Answer
  - Wait & Respond
- Study III: Group Instruction
  - Read
  - Ask
  - Answer
  - Prompt
  - Always Respond with 2 Symbols

# (5) Controlled Practice & Feedback

- Role Plays
  - Studies I & II: One-on-one instruction
    - Peer/Graduate SLP clinician as themselves
    - Instructor as the child
  - Study III: Group instruction
    - Caregivers pair up in groups of 2
    - One caregiver as him/herself
    - One caregiver as the child
    - Periodically switch roles to ensure equal practice
    - Instructor carefully guides dyads through each role play

# (5) Controlled Practice & Feedback

## Studies I, II, & III

- Start simple
  - First 3 pages
    - “Child” says nothing
    - Peer/clinician/caregiver 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/caregiver starts working with child (with instructor support, prompting & feedback)
  - Studies I & II: One-on-one
  - Study III:
    - Small group (5 dyads), then
    - One-on-one
- Peer/clinician/caregiver practices with child until partner is:
  - Comfortable
  - Consistent
    - At least 20 pages
- Instructor monitors carefully
  - Ensure that peer/clinician/caregiver consistently uses strategy



# (6) Advanced Practice & Feedback

- Intervention Phase
  - Instructor no longer provides feedback
  - Intervention phase continues until
    - Studies I & II
      - Child takes a turn on at least 80% of the pages
      - 3 consecutive sessions
    - Study III
      - Last day of camp!
      - One session

# (7) Post-Test & Commitment

## (8) Generalization

### Studies I, II, & III

- Review peer/clinician/caregiver's mastery of strategy
  - Less time for this with Study III
- Discuss further/ extend future use of the strategy

# Measures: Dependant Variables

- Data for Peers/Clinicians/Caregivers
  - Studies I, II, & III
    - Percentage of instructional steps accurately followed during each story reading session
- Data for Children using AAC
  - Studies I & II
    - Percentage of pages on which children took a communicative turn
  - Study III
    - Number of multi-symbol messages within each 10-minute reading session

## Studies I & II: Peers & Clinicians

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

## Study III: Caregivers

- All used strategy in final session
  - Group statistics
    - Statistically significant differences between baseline and post-intervention data
      - »  $p < 0.01$

## Studies I & II: Children

- Intervention
  - All but one met criterion (took turns on at least 80% of pages)
    - 2 – 4 hours of instructions (5 sessions with peers)
- Generalization
  - All but one generalized use of multi-symbol messages to new sets of storybooks
    - Not measured with Colin
- Maintenance
  - All but one maintained use of multi-symbol messages for 2-8 weeks
    - Not measured with Colin

## Study III: Children

- Intervention
  - Group statistics
    - Statistically significant differences between baseline and post-intervention data
      - $p < 0.01$

# Discussion

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

# Adaptations

- Peer Instruction
  - Most likely need to provide information & have discussions about:
    - Having a disability
    - Technology use
    - Social issues
- Group Instruction
  - Many instructional steps can be modified for group instruction

# Adaptations

- Children with Autism
  - May need to provide
    - Schedule boards
    - Frequent breaks
  - Need to re-think operational definition for communicative turns
    - Must account for/define
      - Perseverations
      - Purposefulness of communicative turns



# Directions for Future Research

- Adapt strategy
  - Other formats for group instruction\*
    - Teach broader range of skills and activities
    - Started 9-week program with research partners at The Children's Hospital in Denver
      - Maija Gulens, Amy Frisbee, Lisa Martin
  - Other partners, such as AAC teams\*
    - Starting this project in the spring

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  - Peers
  - Graduate SLP Clinicians
  - Children who used AAC
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