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

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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)
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

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*

“Response” Component

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

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(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

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(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

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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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• Participants
  – Peers
  – Graduate SLP Clinicians
  – Children who used AAC

• Families of all participants

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