

## Joint Attention Intervention for Children with Autism

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### Joint Attention

- an early social-communicative behavior in which two people share attentional focus on an object or event, for the sole purpose of sharing that interesting object with each other

Bakeman, R., & Adamson, L. (1984). Coordinating attention to people and objects in mother-infant and peer-infant interaction. *Child Development*, 55, 1278-1289.

### Joint attention in typically developing children

- What does it look like?
  - Responding to others' joint attention directives
  - Initiating joint attention
- Function?

### Joint attention in typically developing children

- Why is joint attention important?

### Joint attention in children with autism

- Deficits in both responding to others' joint attention directives and initiating joint attention
- Persisting deficits in initiating joint attention
- Evident very early

### Why is joint attention important in autism?

- Reflects core social-communicative impairments
- Related to social, communication development
- Related to intervention outcome

### Assessment

- Examine both joint attention skills within very structured situation involving isolated items
- Examine within naturally occurring routines
  - Book reading
  - Walking in the neighborhood
- Formal assessments (e.g., Early Social Communication Scales [ESCS]; Mundy et al., 2003)

### Assessment: Responding to others' joint attention directives

- Identify something interesting
  - A toy that makes noise
  - A remote control car that moves in front of the child
  - Turning the page in a book
  - Arriving at a particular animal display at the zoo
  - Opening a box with a preferred item inside
- Look at it, point at it, and comment in an exclamatory voice (e.g., "Wow, that's neat!") (Vary whether child is looking at you, at something else, or already in the general direction of the interesting object)
- Record child's response: note if he/she looks at the object, but more importantly, if he/she looks at the object, then at you, and back at the object (i.e., alternates gaze)

### Assessment: Initiating joint attention

- Identify something interesting
- Do NOT say or do anything!
- Wait for the child to start the interaction by:
  - alternating his/her gaze
  - gesturing (e.g., pointing)
  - and/or verbalizing (e.g., "Wow!")
- Record child's response: note if child emits any of the above forms or combinations of forms
- \*Remember the function of initiating joint attention is social. Do not include gestures (e.g., reaching) or verbalizations indicating requesting as evidence of initiating joint attention.

### Beginning joint attention intervention: With toys

- Behaviorally based intervention involving repeated opportunities with specific prompting and fading procedures and use of specific reinforcement procedures to establish the social function of joint attention
- Discrete trial instruction context
- Pivotal Response Training strategies (Koegel, Koegel, Harrower, & Carter, 1999)
- Rapport building

### Steps for beginning joint attention intervention with toys

- Step 1. Choose materials
- Step 2. Identify instructional strategies
  - Prompts
  - Reinforcers
- Step 3. Implement intervention

### Step 1. Choose materials

- Interest: Child preferred toys
- Features: toys that can be activated (i.e., make noise, light up, move)
- Novelty: 20+ different toys

## Step 2. Identify instructional strategies

- Identify prompts for gaze alternating
  - "Name"
  - Primary reinforcer
  - Pointing finger
  - Touch chin
  - Expectant look
  - Fading: Time delay and most to least prompt hierarchy
- Identify reinforcers: idiosyncratic social reinforcers

## Step 3. Implement joint attention intervention with toys

- Teach responding to others' joint attention directives first, then initiating joint attention
- Seat yourself across from the child (rather than next to or behind the child)
- Seat yourself close to the child's eye level
- Presenting toys:
  - One toy at a time (at least initially)
  - Keep toys relatively close initially
- Use multiple toys within a session and rotate toys across sessions
- Conduct at least 1 session per day

## Teach responding to others' joint attention directives

- S<sup>D</sup> = Adult points, looks at, and vocalizes about (e.g., "Look at that!") interesting object or event
  - \* make sure to vary what you say across opportunities
- Child's response = alternating gaze from object to adult back to object, as if to say, "Oh yeah, I see it!"
- Consequence = comment, idiosyncratic social reinforcers, and continued attention on the interesting object or event

## Teach initiating joint attention

- S<sup>D</sup> = presence of an interesting object or event and person to share it with
- Child's response = look at object, look at adult, look and point back at object, as if to say, "Wow, that's cool!"
- Consequence = comment, idiosyncratic social reinforcers, and continued attention on the interesting object or event

## Jones, Carr, & Feeley (2006)

- Multiple baseline across 2 types of joint attention
- 5 participants (2-3 years of age)
- 3 diagnosed PDD-NOS, 2 diagnosed with autism
- Expressive language: 9-14 months
- Receptive language: 6-12 months
- IQ: 8-18 months

## Jones & Feeley (2007)

- Parent implemented joint attention intervention
- Multiple baseline across the 2 types of joint attention
- 3 participants (3-5, 3-9, 4 years of age)
- IQ: standard scores = 50-79
- Language: standard scores = 55-73
- Parents implemented intervention once per day

### Expanding the response class of forms of initiating joint attention

- The more social of the two types of joint attention
- Persisting deficit
- Multicomponent response
  - Gaze alternating
  - Gesture
  - Verbalization

### Initiating joint attention

- Gesture
  - Pointing, showing
  - Model
  - Physical prompt
- Verbalizations
  - One word utterance, multiword phrases
  - Model
  - Textual cue

### Initiating joint attention

- Can teach a multicomponent response simultaneously (e.g., Jones, Carr, & Feeley, 2006; Jones & Feeley, 2007)
- or
- Teach gaze alternating first, then add additional forms one at a time (Jones, in prep; Jones & Feeley, 2007)

### Jones, in prep

- Gaze alternating, gesturing, and verbalizing (one word and multiword phrases)
- 2 participants (3-2 and 4-11 years of age)
- Multiple baseline across increasingly sophisticated forms of initiating joint attention

### Expanding the class of stimuli that occasion joint attention: Routines

- Activities in which there are multiple opportunities to engage in joint attention
- Examples:
  - Book reading
  - Visiting the zoo
  - Playing a game

### Joint attention intervention: Routines

1. Choose routines
  - Interest: use child preferred routines
    - Consider child's existing skill repertoire and attention to relevant stimuli
  - Novelty: identify multiple examples of a routine (e.g., several books, games)
  - Be sure that the routine allows for several opportunities (or it is possible to orchestrate opportunities to increase practice)
2. Identify S<sup>D</sup>s
  - E.g., Book reading:
    - Responding to others' joint attention directives:
      - Look and point at, while commenting on, any picture on a page; look at and comment while pressing a sound button on the book; look at and comment while opening a flap
    - Initiating joint attention:
      - New page of pictures
      - Sound when a button is pressed
      - After partner is done reading the text on the page

### Joint attention intervention: Routines

3. Identify prompts and reinforcers
4. Implement intervention
  - Intervention follows a more activity-based intervention context (Bricker, Pretti-Frontczak, & McComas, 1998)
  - Teach responding to others' joint attention directives first, followed by initiating joint attention or teach simultaneously
  - Consider how the situation impacts the child's joint attention response

### Establishing performance criteria (Jones & Feeley, in prep)

- Typical preschoolers (3-4 years)
- Engaged in 3 routines with their mothers for 5 minutes
- Averaged 5 responses to their mothers' joint attention directives
- Averaged 3 initiations of joint attention

### Joint attention within routines

- Clinical extension for 2 participants with their parents (Jones, Carr, & Feeley, 2006)
- Parent implemented intervention (Jones & Feeley, in prep)
  - 3 participants
  - Multiple baseline across 3 routines
  - E.g., book reading, toy activity, and community outing (e.g., walking in the neighborhood, visiting the zoo)
- Preschool routines (Jones, in prep)
  - 1 participants (3-2 years)
  - Multiple baseline across 3 routines: games, puzzles, and lunch
  - 1 participant (4-11 years)
  - Games routine

### Outcomes

- Existing joint attention abilities positively influences intervention outcomes in children with autism (e.g., Kasari, Paparella, Freeman, & Jahromi, 2008; Yoder & Stone, 2006).
- Collateral changes
  - Ratings of happiness, interest
  - Language  
(Jones, Carr, & Feeley, 2006; Whalen & Schreibman, 2003)
- Specifically teaching joint attention is also related to greater improvements in language than interventions that do not focus on joint attention (Kasari et al., 2008).

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