

## Joint Attention Intervention for Young Children with Autism

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## Overview

- Joint attention
  - What is joint attention?
  - Why is joint attention important?
  - Impairments in joint attention in autism
- Joint attention intervention research
- Intervention
- Considerations in developing intervention:
  - Joint attention materials and contexts
  - JJA and IJA and choosing cues
  - Forms of joint attention

## What is 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.

## What is joint attention?

- Sigman and Kasari (1995): narrower and broader definitions:
- “Looking where someone else is looking” (Butterworth, 1991, p. 223)
- “Responsive and initiating behaviors as well as the checking of another person’s face that occurs while the infant is playing with something, when the infant has pointing to something, or in an ambiguous situation” (Sigman & Kasari, 1995, p. 189)

## Joint attention in typically developing children

- State of coordinated attention
- Set of skills
  - Responding to others’ joint attention directives
  - Initiating joint attention
- Function?

## Why is joint attention important?

- Language development (Bono, Daley, & Sigman, 2004; Loveland & Landry, 1986; Mundy & Gomes, 1998; Smith, Miranda, & Zaidman-Zait, 2007; Toth, Munson, Meltzoff, & Dawson 2006)
- Social-cognitive development (Sheinkopf, Mundy, Claussen, & Willoughby, 2004; Travis, Sigman, & Ruskin, 2001; Vaughan et al. 2003)

### Impairments in 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 and persists

### Why is joint attention important in intervention for children with autism?

- Reflects core social-communicative impairments (Mundy & Crowson, 1997)
- Related to social, communication development
- Pivotal skill (Mundy & Crowson, 1997; Jones & Carr, 2004)

### Outcomes of JA Intervention

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

### JA Intervention

- Repeated opportunities
- Structured and more natural practice
- Specific prompting and fading procedures
- Use of social consequences
- Additional reinforcers?
- Pivotal response training (Jones et al., 2006; Whalen & Schreibman, 2003) and milieu teaching procedures (Kasari et al., 2006)

### Intervention

- Seat yourself across from the child (rather than next to or behind the child) and close to the child's eye level
- Engage child in activity or with object
- Present joint attention cue
- Prompt a response as necessary
- Present consequences: Social: comment, smile, look, engage with object/activity

### 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
- Consequence = comment, social reinforcers, and continued attention on the interesting object or event
  - \* make sure to vary what you say across opportunities

## Teach initiating joint attention

- $S^D$  = presence of an interesting object or event and person to share it with
- Child's response
- Consequence = comment, social reinforcers, and continued attention on the interesting object or event

## Considerations in developing intervention

## Materials

- Preference (interest)
- Salience: toys that can be activated (i.e., make noise, light up, move)
- Novelty:
  - multiple exemplars (Jones et al., 2006)
  - Without prior exposure or unusual features (Taylor & Hoch, 2008)

### Toys/items:

- A toy that makes noise
- A remote control car that moves in front of the child
- Familiar items but different presentation (e., "toy horse wearing a clown wig" Taylor & Hoch, 2008, p. 379)
- Item appears from behind a screen (Naoi et al., 2008)
- Opening a box with a preferred item inside

### Routines:

- Arriving at a particular animal display at the zoo
- Turn taking

## Circumscribed interests

- Circumscribed interests (CI): specific topics or themes of abnormal intensity
- Interventions which included CI demonstrated a positive effect on a variety of responses of children with autism, including collateral increases in joint attention (Baker, 2000; Vismara & Lyons, 2007)
- CI-related materials may be particularly powerful reinforcers for joint attention intervention

Kryzak, L., Bauer, S., Jones, E. A., & Sturmey, P. *Using Circumscribed Interest Embedded Activities and Prompting to Establish Joint Attention in Children with Autism Spectrum Disorders*. Manuscript submitted for publication.

## Responding to others' joint attention directives and/or Initiating joint attention

- RJA first
- RJA and IJA simultaneous

## Cue?

### Responding to others' joint attention directives

- E.g., Book reading:
  - 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

- E.g., Book reading:
  - New page of pictures
  - Sound when a button is pressed
  - After partner is done reading the text on the page

## Other JA Cues

- Adult turn's head toward, looks at, and points to object and vocalizes (point touches object; point does not touch object)
  - Adult turn's head toward and looks at object, and vocalizes
  - Adult turn's head and looks at object
  - Adult looks at object
  - Object
- Krstovska-Geurrero & Jones, in progress; Martins & Harris, 2006

## Other JA Cues

- Time based for IJA (Whalen & Schreibman, 2003)
- Only very odd or unusual stimuli (Taylor & Hoch, 2008)
- Objects that make noise, light up, move, etc. (Jones et al., 2006)
- Turn taking (Isaksen & Holth, 2009; Jones, 2009)

## Form of joint attention

- Gaze alternating \*
- Gesture (pointing, showing)
- Vocalizations (single words such as "Wow" to elaborate comments "Ooh, that's a cool duck!")
- Affect
- Coordinating forms

## Positive affect and joint attention

- Collateral changes
- Jones et al. (2006), Naoi et al. (2008), Whalen et al. (2006)

## Gaze alternating coordinated with smiling

1. teach smiling in response to verbal instruction smile

\*rationale: child smiles and looks at object first, so need a prompt that you can use when child is not looking at you

2. teach looking at the object and smiling
3. teach gaze alternating and smiling

## Identify prompts

- For gaze alternating
  - "Name"
  - Primary reinforcer
  - Pointing finger
  - Touch chin
  - Expectant look
  - Fading: Time delay and most to least prompt hierarchy

– Example:

Full prompt	Child's name	Primary reinforcer
Partial prompt	Initial sound of name	Pointing finger

## Identify prompts (continued)

- For gesture
  - Model
  - Hand over hand
  - Teach pointing in imitation first
- For verbalization
  - Model
  - Visual prompt
- For affect
- Fade: most to least, time delay

## Determining most effective prompt

- For gaze alternating:
  - Engage child with toy or activity and present a potential prompt (e.g., call child's name)
  - Present 5 opportunities
  - Examine if child looks up at you from toy/activity
  - Choose the least intrusive and most successful (e.g., 80% responding) prompt
- Repeat to examine prompts for gesture and verbalization

## Performance Criteria

- Percentage of RJA (80%)
- Frequency IJA within natural opportunities and routines
- Compare to typical peers with similar partners
- In Jones (2009) and Jones et al. (in prep)
  - Typical preschoolers (3-4 years)
  - Engage in 3 routines with their mothers for 5 minutes
  - Average 5 RJA
  - Average 3 IJA

## Consequences

- Social: comment, smile, look, engage with
- Increasing the value of social consequences:
  - Initial step of joint attention intervention:
    - Pairing social and nonsocial reinforcers
    - Rapport building (Jones et al., 2006)
    - Establish social consequences of JA as conditioned reinforcers (Isaksen & Holth, 2009)
  - Idiosyncratic social reinforcers and interactive play (Jones et al., 2006)
  - Use access to object of JA as reinforcer; lose access to toy if incorrect response (Whalen & Schreibman, 2003)
  - Add other reinforcers (Taylor & Hoch, 2008) and fade

## Expanding JA repertoire

- Additional partners (parents, peers, siblings)
- Distance and positioning of partners and objects
- Number of objects and other distractors
- Other forms and combinations of forms
- Move from structured instruction with toys to routines and more naturally occurring opportunities
- Different sequences of skills and sub skills across functions of communication

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