Joint Attention and Parent-Child Intervention: Pivotal Skills for Social-Emotional Development in Relationship-Based Contexts

Ann M. Mastergeorge
University of Arizona
Family Studies and Human Development
11th Annual Conference on Parent-Child Interaction Therapy for Traumatized Children
October 20, 2011
Overview

- Describing the trajectory of joint attention

- Recognizing early signs of developmental risk in dyadic interaction related to joint attention deficits

- Implications for approaches to joint attention relationship-based interventions.
Key Developmental Milestones
First Signs, Inc. (2004) Key Social, Emotional, and Communication Milestones for Your Baby’s Healthy Development

- 4 MONTHS
  - Follow and react to bright colors, movement, objects
  - Turn toward sounds
  - Show interest in faces
  - Reciprocal smiling

- 6 MONTHS
  - Relates to others with joy
  - Smile often
  - Coos or babbles when happy
  - Cries when unhappy
Key Developmental Milestones

- **9 MONTHS**
  - Smile/laugh while looking at you
  - Exchange back and forth sounds
  - Exchange back and forth gestures: give, take, reach
  - Use repeated gestures (give, show, reach, wave, point)
  - Play peek-a-boo, patty cake, other social games
  - Making sounds and single word approximations
  - Turn to person when his/her name is called

- **12 MONTHS**
Joint Attention: 7 months
Joint Attention: 11 months
15 MONTHS

- Many back-and-forth smiles, sounds, gestures
- Uses pointing or “showing” gestures to gain attention to something of interest
- Uses different sounds to get needs met and draw attention to interests
- Use and understand at least three words (“mama”, “dada”, “bye-bye”, “bottle”
18 MONTHS

- Use lots of gestures with words (e.g. pointing and says “want juice”)
- Use lots of consonant sounds in single word approximations/words
- Uses and understands at least 10 words
- Shows/knows the names of familiar people or body parts
- Engage in simple pretend play (feeding a doll, putting doll to sleep)
Key Developmental Milestones

- **24 MONTHS**
  - Pretend play with more than one action (feed doll and put doll to sleep)
  - Use and understand at least 50 words
  - Use at least two words together (without imitation and repetition) and in a way that makes sense (e.g., “want juice”)
  - Enjoy being next to children of same age, show interest in playing with them, giving toy to another child
  - Look for familiar objects out of sight (when asked...
36 MONTHS

- Enjoys pretend play (play different characters talking for dolls or action figures)
- Enjoys playing with children same age
- Using language to convey thoughts and actions (“sleepy, go take nap”)
- Answer “what,”; “where”, and “who” questions easily
- Talks about interests and feelings about the past and future
Series of studies conducted by others to establish a basic paradigm of gaze behaviors in babies 6-18 months of age.

- 6 months: gaze depends on adult signal and the differentiated properties mother attends to in the environment
- 12 months: gaze on localizing targets of interest and fixates on mother during gaze referent: direction and location
- 18 months: between 12-18 months of age development of representational spatial mechanism

Subtle developmental changes that are mutually embedded across mechanisms.
Gestures are actions produced with the intent to communicate.

Gestures: important early indicator of intentionality and window into early communication skill development.

Gesture types and hierarchy of development: reaching, showing, giving and pointing.
Emergent chronology of gestures with early communication behaviors:

- Looking
- Vocalizing
- Vocalizing and looking
- Making contact with an adult’s hand
- Reaching with the whole hand
- Reaching with whole hand and vocalizing
- Reaching with opening and closing hand
- Reaching with opening and closing hand and vocalizing
- Pointing
- Looking at the object, at the adult, and then at the object
- Using a word/word approximation

(Crais et al, 2004)
Early Signals of Communication and Routines: 7 months
Mother-Child Interaction: 11 months
Conclusions


- Early communicative routines demonstrate ways in which mothers support and scaffold joint engagement and joint attention in interactions (Adamson, Bakeman & Decker, 2004; Tomasello, 1988; Mundy & Willoughby, 1998).

- Infant-mother dyads provide a ‘window’ to examine the developmental trajectory of joint attention in the context of a social interaction.
History of joint attention: mid-and late 1970s research focused on three ways that infants incorporate social interactions with others:

- Sharing attention
- Following attention
- Directing attention

Theoretical perspective of Tomasello: attempted to provide single theoretical foundation

- Infants engage in joint attention interactions when they understand other persons as intentional agents
- Intersubjective awareness
Joint attention behaviors in practice

- Joint attention is primarily a social or social-cognitive phenomenon: two individuals know that they are attending to something in common.

- Child coordinates attention to the object and the adult at the same time that the adult coordinates his/her attention to the same object and the child. Notion that the participants are sharing an intentional relation to the world.

Sharing attention as joint engagement
Joint Attention Exemplar
Co-construction of Joint Attention

- Developmental course of joint attention
  - Joint attention (Dunham & Moore, 1995)
  - Supported joint attention (Bakeman & Adamson, 1984)
  - Coordinated joint attention (Adamson & Bakeman, 1991)

- Relationship between joint attention and early word learning (Tommasello & Farrar, 1986)

- Little systematic research that focuses on how very young children and their partners share attention during social interactions (Adamson, Bakeman & Deckner, 2004)
Early coordinated joint attention episodes recognized as significant across dimensions of development.

- “...episodes of shared attention are pictured variously as moments for the mutual regulation of affect and of problem-solving, for the negotiation of communicative intentions, and for sharing of cultural meaning.” (Adamson & Bakeman, 1991, p.9).

Established path from joint attention to early language (e.g., Tomasello & Todd, 1983; Tomasello & Farrar, 1986; Mundy & Gomes, 1998; Carpenter et al, 1998; Adamson et al, 2004).

Little known about the trajectory of early signals of communication and joint attention in infant-mother dyads.
Developmental Trajectory of Joint Attention

- **Following Attention**
  - Gaze following
  - Joint Engagement

- **Following Behavior**
  - Social referencing
  - Imitative learning

- **Declarative Attention**
  - Declaratives

- **Directing Behavior**
  - Imperatives

- Conditioned gaze follow (passive joint attention): 9 months
- Spontaneous gaze follow/coordinated joint attention: 12 months
- Conditioned emotions: 9 months
- Social referencing (imitative learning of symbols, actions on objects): 12 months
- Declarative pointing with gaze alternation: 12 months
- Imperative pointing with gaze alternation: 12 months
Social-communicative abnormalities in the first and second year of life in the following areas:

- Eye contact
- Social referencing
- Imitation
- Orientation to name
- Shared attention and affect
Early Red Flags for Risk

- By 6 months, failure to:
  - Look at faces
  - Smile at others
  - Coo (vowel vocalizations)
- By 12 months, failure to:
  - Respond to name
  - Babble (consonant-vowels)
  - Play social games
  - Display bright affect
- By 18 months, failure to:
  - Point and show
  - Use single words
  - Use gestures
  - Imitate
  - Show interest in other children
Developmental Risk Concerns: Related to Social and Joint Attention

**RED FLAGS:**

- Child does not look at face to check your reaction when faced with something unfamiliar.

- Child does not/rarely uses his/her index finger to point, to indicate interest in something.

- Child does not bring objects over to parent to show.

- Child does not consistently respond to his/her name when called.
Developmental Red Flags

- Impairment in Social Interaction
  - Lack of appropriate eye gaze
  - Lack of warm, joyful expressions
  - Lack of sharing interest or enjoyment
  - Lack of response to name

- Impairment in Communication
  - Lack of showing gestures
  - Lack of coordination of nonverbal communication
Examples of Deficits in Social Interaction

- Difficulty using nonverbal behaviors to regulate social interaction
- Failure to develop age-appropriate peer relationships
- Trouble looking others in the eye
- Little use of gestures while speaking
- Trouble knowing how close to stand to others
- Unusual intonation or voice quality
- Few or no friends
- Relationships only with those much older or younger or with family members
- Relationships based primarily on special interests
- Trouble interacting in groups and following cooperative rules of games
Examples of Deficits in Social Interaction

- Little sharing of pleasure, achievements, or interest with others
- Lack of social or emotional reciprocity
- Enjoys favorite activities, television shows, toys alone (without trying to involve other people)
- Does not try to call others’ attention to activities, interests, or accomplishments
- Little interest in or reaction to praise
- Does not respond to others
- Not aware of others
- Strongly prefers solitary activities
- Does not notice when others are hurt or upset; does not offer comfort
Line of Regard: Typical and Atypical
Turn Taking: Typical and Atypical
Example of Deficits in Communication

- Delay in or total lack of development of language

- Difficulty holding conversations

- No use of words to communicate by age 2
- No simple phrases (for example, “more milk”) by age 3
- After speech develops, immature grammar or repeated errors
- Has trouble knowing how to start, keep going, and/or end a conversation
- Little back-and-forth; may talk on and on in monologue
- Fails to respond to the comments of others; responds only to direct questions
- Difficulty talking about topics not of special interest
Example of Deficits in Communication

- Unusual or repetitive language
- Repeating what others say to them (echolalia)
- Repeating from videos, books, or commercials at inappropriate times or out of context
- Using words or phrases that the child has made up or that have special meaning only to him/her
- Overly formal, pedantic style of speaking (sounds like a “little professor”)
Example of Deficits in Communication

- Play that is not appropriate for developmental level
- Little acting-out scenarios with toys
- Rarely pretends an object is something else (e.g. banana is a telephone)
- Prefers to use toys in a concrete manner (e.g., building with blocks, arranging dollhouse furniture) rather than pretending with them
- When young, little interest in social games such as peek-a-boo, ring-around-the-rosie
Recent focus on developmental precursors of communication, language and social development in the first two years of life.

Children at risk generally have failures of joint attention, nonverbal and preverbal communication, social reciprocity, affective understanding, and imitation.

Based on the recognition that early responsive interactions critically influence children’s development in behavioral, social, emotional and cognitive domains (Bakermans-Kranenburg et al., 2005; Cicchetti et al., 2000; Guralnick, 1999)

- Relationship-based early interventions recognized as important mediators
  - Supporting parent-child joint engagement
  - Regulating parent-child interactions
  - Improving developmental outcomes
Interventions that are dyadic, positive, and that support the parent-child relationship, have been demonstrated to improve quality of interactions, family functioning, and developmental outcomes of the child (Baker et al, 2010; Heinicke et al 1999, 2000, Keren et al, 2001; Mahoney & Perales, 2003).

Relationship-based intervention domains include the following:
- Provide maternal support for creating responsive interactions
- Demonstrate strategies that focus on maternal sensitivity, responsiveness, and joint attention
- Provide developmental and relational guidance.
Role of Families in Intervention

- Parents’ concerns and perspectives should actively help to shape the intervention.

- Parents should be provided the opportunity to learn techniques for teaching their child new skills.

- **Opportunities:**
  - Active engagement embedded in everyday contexts
  - Repeated, planned teaching opportunities
  - Ongoing consultation
  - In-home observations
  - Training to support
  - Individualized problem-solving

- Ongoing mental health services
Elicit and Value Parental Concerns

- All professional encounters with young children should be viewed as an opportunity to elicit developmental information

- **Advantages** (Glascoe, 1999):
  - Concerns are easy to elicit
  - Inquiry is brief
  - Does not involve challenge of eliciting skills from young children
  - Provides family-centered approach to addressing problems
  - Can facilitate a wide range of options including parenting education, reassurance, referral, or further screening or developmental testing
Role of Families in Intervention

- Involvement of families in the development of very young children can occur at multiple levels:
  - Parents learn to apply skills to changing child’s behavior
  - Parents’ use of effective teaching methods
  - Parents’ access to information and range of appropriate services

- Critically important to make information available to parents to ensure their active role in creating opportunities for engagement.
Joint Attention and Developmental Risk: Implications for Intervention

- Failure to use nonverbal behaviors to regulate social interaction.

- Lack of sharing interests and attention with others.

- Limited social-emotional reciprocity.
Joint Attention and Intervention

- Understanding early foundations of social competence: important issue for developmental science and intervention.

- One of the pivotal early experiences is the development of joint attention.

- Joint attention involves the triadic coordination of attention between self, other and third object, event, or symbol (Adamson, 1995; Tomasello, 1995; Trevathen & Aitken, 2001).
Joint attention as a pivotal skill

- Pivotal skill hypothesis: interventions that effectively lead to change in one or two pivotal behaviors may lead to important collateral changes in abnormal behaviors (Koegel & Frea, 1993; Koegel, Koegel & Schreibman; Whalen & Schreibman, 2003)
- Literature suggests initiation of joint attention bids: important target for early intervention
- Role of joint attention skill development in typical development (e.g., Moore & Dunham, 1995)

Pivotal skill development: important indicator of individual differences among children- pivotal individual difference marker
<table>
<thead>
<tr>
<th>Step</th>
<th>Establish shared attention</th>
<th>Maintain via social routines</th>
<th>Maintain shared attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Direct another’s attention to self</td>
<td>Imitate</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Direct another’s attention to object or event</td>
<td>Answer routine questions</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Acknowledge others call for attention</td>
<td>Supply animal sounds</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Acknowledge others call for attention</td>
<td>Describe joint focus</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Routine game</td>
<td>Discuss feelings</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Routine game</td>
<td>Discuss recent events</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Routine game</td>
<td>Discuss non present</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Routine game</td>
<td>Describe joint focus</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Routine game</td>
<td>Discuss feelings</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Routine game</td>
<td>Discuss recent events</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Routine game</td>
<td>Describe non present</td>
<td></td>
</tr>
</tbody>
</table>

Adapted from Ninio and Snow, 1996
Guidelines for Intervention

- Features of Intervention:
  - Intervention begins early.
  - Intervention is intensive in opportunity.
  - Families are actively involved in their children’s intervention.
  - Staff are trained and specialized in early development.
  - Ongoing objective assessment of child’s progress in the context of the mother-child relationship.
Emily: Week 1
Emily: Week 6
Emily: Week 16
Results
Maternal and Child Intervention Interaction Ratings

- **Joint Attention & Initiation**
  - Pre: 2.8
  - Post: 3.1

- **Child Behavior**
  - Pre: 2.6
  - Post: 2.9

- **Maternal Behavior**
  - Sensitivity:
    - Pre: 3.1
    - Post: 3.4
  - Reciprocity:
    - Pre: 3.0
    - Post: 2.8
Results
Communication Development Inventory (CDI)

Use of Imitation

Words Production

Percentage using Imitation

Average Number of Words Produced

Pre
Post
Pre
Post
Gaps in literature regarding developmental hierarchy of a variety of joint attention behaviors and associated functions: Need documented intervention studies.

Embedded relationship between gaze, gesture and joint attention and developmental outcomes: key in early intervention.

Developmental profiles may elucidate specific interventions for pre-and early intentional children with at-risk developmental trajectories.
Thank You!

The Norton School of Family and Consumer Sciences
Family Studies and Human Development
amastergeorge@u.arizona.edu
http://mcclellandinstitute.arizona.edu