MULTIMODAL MULTIPERSON INTERACTION WITH INFANTS AGED 9 TO 15 MONTHS[5]

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Project	Multimodal Interaction
Task	Videotaped natural interaction, systematic observations of child-caregiver interactions
Goal of subproject	To document the nature of caregiver infant interaction in different cultures, especially during the critical age of 9-15 months when children come to have an understanding of others' intentions. This is of interest to all students of interaction; it does not require specialist knowledge of children.

NOTE:
Before going to the field, make extra copies of coding sheets (p 62 and 63) to take with you

Background
Interaction, for all that it has an ethological base, is culturally constituted, and how new social members are enculturated into the interactional practices of the society is of critical interest to our understanding of interaction – how much is learned, how variable is it across cultures - as well as to our understanding of the role of culture in children's social-cognitive development.

This is a subproject conducted in collaboration between members of the Multimodal Interaction project and child development specialists. The aim is to study the socio-communicative environment in which children learn to interact with caregivers and others across different cultures. Research on caregiver-child interaction in western contexts has been strongly biassed toward diadic mother-child interaction. But most children in most societies grow up in a multiperson context with other children (siblings, cousins, etc.) and multiple caregivers (grannies, aunts, older siblings, as well as the mother). We are interested in documenting the range of caregiver situations represented in different cultural contexts, and the range of variation that exists in how infants are drawn into social interaction in the period prior to producing their first words. The critical age is between about 9 and 15 months, when major social-cognitive abilities emerge, including awareness of the other as an intentional agent and joint attention with a caregiver over a third object or event (the 'referential triangle', Tomasello). In this period, western infants progress from sharing attention (alternating gaze between object and adult's face) to following adult's attention (look at what caregiver is looking at) to

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[5] This task first appeared in Field Manual 2003.

directing the attention of others (Carpenter et al 1998). Around 12 months of age there is an important developmental milestone: babies look where adults are looking reliably, use adults as social reference points (gaze at them to check what to do in an uncertain situation); act on objects like adults are doing; actively direct adult attention. All of these are (putatively) essential prerequisites for coordinated interaction, and later for learning language. But we have very little information about how much this process varies across cultures.

This initial exploration of infant-caregiver interaction can be done at two levels of commitment (see below). Further, there is a third section with special emphasis on pointing in infant interactions. If you are interested or have done observations with regard to pointing, please contact Ulf Liszkowski (liszkowski@eva.mpg.de).

Tasks
1. Observation and informal videotaping of naturally-occurring mother-child and other caregiver-child interaction across a range of contexts - e.g., when the baby is feeding, being put to sleep, or being handled in relation to things (i) of danger to it, (ii) of interest to it, (iii) of surprise/fear to it, as well as any interaction not in connection with caregiving. Pertinent questions concern the practices involved in the handling of babies, and the specific forms of interaction with babies; videotaped documentation of these practices would provide a rich resource for further study. You do not need to be a student of language acquisition to do this task; any information about cultural practices and videotaped documentation of infant-caregiver interaction will be of interest to us – indeed, for children of any age from birth to about four - given the strong claims for universals in this domain despite the lack of detailed interactional data from most societies of the world.

The first task is to identify a family with a baby of the appropriate age (roughly 9 to 15 months), and establish a relationship to them such that it is possible to videotape people interacting with the baby across different situations. Try to find out exactly how old the baby is, and the ages of the other siblings – cousins – etc. regularly present in the household. Then document with videotape the following practices (try to keep yourself out of the interaction completely; you are the machine in the corner):

Handling:
- Who is the infant's primary caregiver (mother? older siblings? other relatives?)
- Are infants always carried (and how)?
- When are they set down (and how)?
- How are they fed? put to sleep? bathed?
- How is elimination handled?

Interaction:
- Is the baby treated as an interlocutor? For whom? Who facilitates interaction with the baby?
- How are babies drawn into joint attention with others?
- When and how do others try to get the baby's attention? when and how is the baby treated as an intentional other by caretakers?
- Do people point out objects – or people, or events – to babies?

- If the baby wants something that it can't get/do by itself, what does it do? (say uhuh, cry, socially communicate e.g. by looking to other? lift both arms up to indicate pick-me-up? etc.)
- Does the baby try to get others' attention? how? what kind of attention-requests do you see: requesting (indicating 'I want this') or declarative ('Look at this')?
- Do babies point in an attempt to draw others' attention to things?
- Do babies and caregivers jointly attend to objects? (gaze back and forth between object and each other)
- Are there special baby routines (e.g. patty-cake, naming body parts) that draw the infant into interaction with others?
- Is there a folk theory about when the baby becomes a 'person' or an interlocutor?
- What is the language environment of babies – how many (and which) languages are spoken around/to them?
- What is the general level of interaction with babies from birth on – are they talked to? With a baby-talk register (heightened or accentuated pitch, slow rate, repetition). How does this change with the child's age?
- Do babies attend to what's going on between others?

Socially loaded moments:
- Attachment: what's the baby's reaction if everyone leaves? If a stranger comes to the door? Does the baby try to stay close to mother? fear of strangers?
- Where was the baby the first time it saw you? What was the baby's reaction to you?
- What does the baby do in response to a novel object?

2. <u>More systematic observations of caregiver-infant interaction</u>
These are systematic sampling procedures of going beyond anecdotal observation of interactional practices, in order to establish the nature of particular event types, their relative frequency in a cultural context, and the associated social factors when they occur. There are three types of systematic probes, using a fixed set of predetermined codes for the behaviour being observed, and sampling by moment, by event, or by time. If you aren't going to do them all, do them in this order.

2.1 <u>A momentary sample</u>:
The purpose of this probe is to get a quantitative assessment of how much time (proportionally) the infant spends in what kinds of interaction with people and with objects. It involves the investigator taking a 'snapshot' of what is happening with the baby at regular time intervals. Sit in an everyday family setting observing interaction and behaviour for several hours (ideally 3 or 4), and every 5 minutes (like clockwork) write down what all the people present are doing at that moment vis a vis the baby (or otherwise), using the codes suggested in the coding sheet below (and any others that strike you as culturally relevant/necessary). Do this with a watch, strictly on time every 5 minutes, ignoring (for this task) what happens not at the every-5-minutes-defined moment. The result will be a series of random snapshots of activity in relation to the baby that will enable you to say with some confidence how much interaction the baby engages in – and when – and how it fits into the daily activities of the household. Do this for 3 families, and/or 3 different times of day (e.g. morning, midday, late pm). Be sure that you sample exactly every 5 minutes; don't let the sampling be shifted because at some other time point something interesting is happening – the idea is to randomly

sample. An actual photograph could be taken every 5 minutes if you have an assistant and if it can be done unobtrusively so as not to affect the activities being observed.

Coding sheet: columns across the top for each member of the household who interacts with the baby; have codes for: work, rest, play with object, attend to bodily functions (eat, sleep, pee, clothe), social orientation (interacting, observing, taking care), other (not home, etc.) [amplify as necessary with culturally relevant activities]

2.2. An event sample:

This kind of sampling aims to document particular events of interest, in our case interactional moments with the baby, and their internal structure. Again, sit in a household in an everyday natural setting, and write down a description of what happens every time someone interacts with the baby or the baby initiates interaction (successfully or not). You will need to define the boundaries of an interaction event - what behaviours initate an interaction and what terminates it in culture-specific terms (speaking, gaze, touching, etc.). Aim for a very concrete description of behaviours, avoiding your own interpretive gloss (e.g. write mother 'touches' baby, not mother 'fondles' baby). At the end of this sampling period you should be able to answer the following questions for each period of interaction you recorded: Who started the interaction? How was it initiated? What was the goal? (e.g., caregiving, stimulation, showing/sharing an object, etc.) What was the emotional tone (positive/negative/ neutral)? Who terminated the interaction, and how? (You will need a termination criterion defined in a culturally meaningful way: e.g. no look or vocalization for 30 secs. or whatever is culturally relevant.) How long did it go on for? Who was involved? What was the spatial orientation of participants? Was the baby physically constrained (e.g., tied onto the interlocutor)? How does physical constraint affect the interaction? Was gaze locked between baby and interlocutor? Was there pointing or other gesture? What do they say? baby talk? whisper? How was turn-taking organized? (both at once? orderly alternations? competition for the floor?). Was the interaction co-occuring with other physical activities? with objects? etc.

2.3 A time sample:

This kind of sampling allows one to establish the range of activities an infant engages in over a particular period of time, in relation to what else happens. Take for example a time period of 20 minutes. Here you write down whatever happens in the time period (using a coding sheet), and you make a line under the description every 60 seconds so you can see how what happens is distributed in time. Do this at 3 or 4 different times of the day, and different days of the week, making sure that the samples occur at routine, not unrepresentative, times in the baby's life.

Coding categories should include: orients to objects, orients to people, goes, eats/nurses, cries/frets, sleeps, goes out, comes in, etc.

3. Pointing behavior:

Below we have included a section by Ulf Liszkowski and Pattie Epps of the MPI for Evolutionary Anthropology. This provides guidelines for documenting pointing behaviour; in addition it may serve as an illustration of how to code for the other aspects of interaction you may be interested in (turn-taking, coordinated laughter, back channel signals, eye-gaze, repair, etc.)

3.1 Directing attention and pointing in infants: a cross-cultural approach
(Ulf Liszkowski & Pattie Epps, MPI for Evolutionary Anthropology, Leipzig)

Recent research (Liszkowski, Carpenter, Henning, Striano, Tomasello, submitted) suggests that 12-month-old infants in German cultural settings have the motive of sharing their attention to and interest in various events with a social interlocutor. To do so, these preverbal infants predominantly use the pointing gesture (in this case the extended arm with or without extended index finger) as a means to direct another person's attention. At the MPI for Evolutionary Anthropology we systematically investigate different types of motives underlying infants' pointing. The occurrence of a protodeclarative (as opposed to protoimperative) motive is of particular interest because it requires an understanding of the recipient's psychological states, such as attention and interest, that can be directed and accessed. However, we do not know what role pointing gestures themselves play in the emergence of such early understanding of another's psychological states.

Through an examination of cross-cultural data, we hope to arrive at a better understanding of the role of attention-directing gestures in initiating joined attention to distal events, and in the acquisition of early social cognitive understanding. Note that this project is closely related to the Ethnography of Pointing questionnaire in the Gesture Project (Wilkins, Kita, Enfield) at the MPI for Psycholinguistics. We refer here to pointing in a broad sense according to their definition (see Field Manual 2001, pp. 121-130), although the emphasis here is specifically on attention-directing gestures involving interaction between infants and social partners (e.g. caregivers, peers, siblings). Relevant questions are:

1. Which means do members of a particular culture use to direct another person's attention (e.g., body gestures like lip-, arm-, head-, finger pointing; vocalizing, eye gaze)?
2. How frequently and under which circumstances do infant social partners (i.e. caregivers, peers, siblings) use these attention-directing gestures for the infant?
3. Do infants of such cultures direct others' attention (and if so at which age)? By which means do they do so? How do the social partners react?

Pages 55 and 56 give an example of a coding scheme with relevant categories for recording observations. Observations should focus on settings where interaction with the infant is likely. Videotaping is strongly recommended, followed by later coding of the pointing events from the video recordings; however, if video is not available pointing events can be coded on-site as they are observed. Each gestural event should receive its own coding sheet. Where multiple interlocutors are present, use of names or other descriptive devices may be necessary in order to differentiate participants in the interaction. Wherever possible, please use the comment fields to elaborate on your observations. Please note that the age range is not exclusive. While pointing interaction involving 9-15 month-olds is of primary interest here, data involving older children (e.g. 2-4 years) is also relevant.

Analysis

Analysis will consist in tabulating the results of systematic observations, and coding videotaped interactions for the variables of interest. Participants who have data based on this field manual entry will meet (where possible) to compare and discuss the results.

Outcome

We expect every researcher carrying out (part of) this task to write a report detailing their observations about child/caregiver interaction practices in the community of their study. This will form the basis for publications (either joint, or individually, depending on what we find) describing the interactional practices under examination (e.g., achieving joint attention over an object, or pointing).

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Coding scheme for gestural interaction between infants and social partners

1. Date:_____ Time:_____min. Setting:_____
2. Sender (Gesturer): Infant / Social partner Name:_____ Age: _____
   Gender:_____
3. People involved (peers, parents, siblings,…):_____
_____

Gesture form	Pointing shape[1]	Vocalizing	Eye point	Other:		Comment
Additional signals toward same Referent?						
Sender's gaze direction (specify person/object to which gaze is directed)						
Assumed addressee (researcher's hypothesis)						
Referent (which object/event evoked the gesture?)						
Gesture function (researcher's hypothesis)	Imperative (requesting action of Addressee)	Declarative (shares attention between Referent and Sender)		Self-centered (no intended Addressee)		
Reaction to gesture (how do interlocutor(s) respond?)	Joint Attention (shared attention between Referent and Sender)	Object (attends to Referent but not to Sender)	Sender (attends to Sender but not to Referent)	Ignore (attends neither to Sender nor to Referent)	Gives object	
Who reacts? (If multiple interlocutors)						
Any shift of Sender's attention based on reaction?						
Other observations or comments						

[1] L= Lip point; H= Head point; HN= Hand point [palm up / side / down]; F = Finger point [index / middle / ring / little]; T= Thumb point; E= Extended arm (state also with F;HN;T).

Orientation to the coding scheme:

Feel free to add any category you think might be related to the overall question.

1. Please always state the duration of your observation period and the context (setting) in which it occurred.
2. Circle which interlocutor (infant or other) produces the attention-directing gesture. If an infant directs another infant's attention, circle 'infant' and indicate addressee in row 3 & 4. Please always note the infants' ages as precisely as possible, especially where they (as opposed to a sibling or caregiver, for example) are producing the pointing gesture.
3. State who is taking part in the setting of your observation and for each participant, give a grade of familiarity to the sender/pointer (e.g., parents, siblings, friends, neighbors, strangers). If one or more interlocutors are more closely involved in the interaction with the infant than others, set these primary participants apart with brackets.
4. Row 2: If you judge that a Sender has used repeated signals vis-à-vis the same referent within a single gestural episode, please indicate the number of times each type of signal was used.
5. Row 3: State the direction of gaze that accompanied the gesture (during and/or after), in particular when the gaze is directed toward an Addressee/ interlocutor.
6. Row 6: For example, Imperative indicates request for an object; Declarative directs attention (e.g. points at bird in sky); Self-centered gesture involves no indication that another interlocutor is considered (e.g. child does not look at an Addressee).
7. Row 8: After an interlocutor reacts, the sender's follow-up attentional behavior may be based on this reaction. Please state what the follow-up behavior is, especially if it involves any attentional shift (e.g., looking at another Addressee or Referent).

For any questions or comments please contact Ulf, liszkowski@eva.mpg.de.