

# SOCIAL & COMMUNICATIVE BASES (CH. 5)

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COMD570: Language Development



# Sign(s) of the day

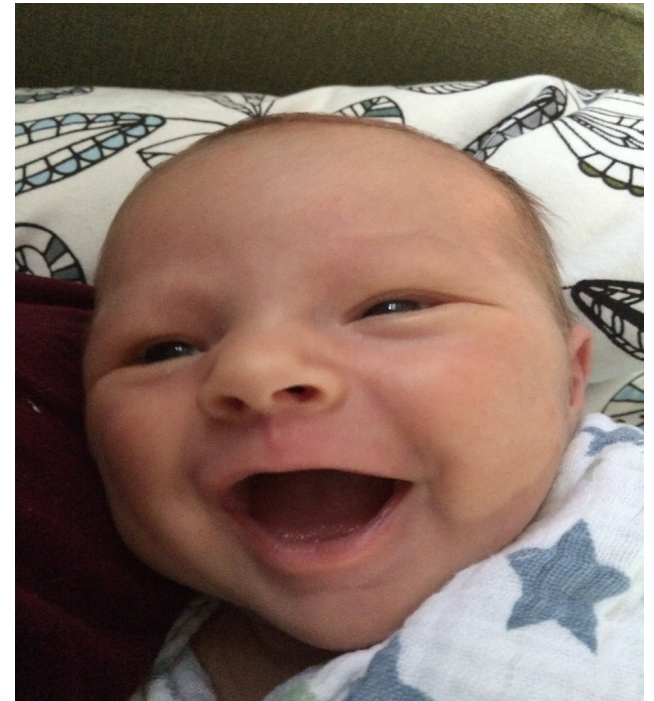
- Colors
  - Colors
  - Red
  - Orange
  - Yellow
  - Green
  - Blue
  - Purple
  - Brown
  - Black
  - White
  - Pink

# Humans are inherently social

- Humans are a socially-oriented species
  - Also highly cooperative, relative to chimpanzees for instance
  - <https://www.youtube.com/watch?v=rOHxsZBD3Us>
- Desire for communication helps drive some aspects of language development
  - Social Constructivism and the Zone of Proximal Development

# Newborn Social Interactions

- Preference for human faces and voices
- Use head orientation and eye contact to initiate and terminate interactions
- Most facial expressions are results of bodily processes
  - Parents often interpret them as expressions of emotion
- First social smile usually emerges around 4-6 weeks after birth
  - Not picky – will smile at the sight or sound of any other human



# Early Infant Emotional Expressions

**TABLE 5.1** Infant Emotions

EMOTION	DESCRIPTION	EMERGENCE
Interest	Brows knit or raised, mouth rounded, lips pursed	Present at birth
Distress	Eyes closed tightly, mouth square and angular (as in anger)	Present at birth
Disgust	Nose wrinkled, upper lip elevated, tongue protruded	Present at birth
Social smile	Corners of mouth raised, cheeks lifted, eyes twinkle; neonatal “half smile” and early startle may be precursors	4–6 weeks
Anger	Brows together and drawn downward, eyes set, mouth square	3–4 months
Sadness	Inner corners of brows raised, mouth turns down in corners, pout	3–4 months
Surprise	Brows raised, eyes widened, oval-shaped mouth	3–4 months
Fear	Brows level but drawn in and up, eyes widened, mouth retracted	5–7 weeks

*Source:* Information from work of Carroll Izard as reported by Trotter (1983).

# Early Infant Emotional Expressions

- Cooing emerges around 2 months, often accompanied by emotional expressions
- By 4 months, smiles are “bigger” for certain people or in response to happy expressions of a caregiver
- Infants find emotional faces more interesting than emotionless faces

# Parental Responsiveness

- Consistency of parental responding is important:
  - Encourages secure attachment: confidence that caregiver will support the infant
  - Reinforces the cause-effect contingency of behavior
  - Increases motivation to communicate
  - Establishes basic turn-taking routines that are critical for successful communication
- Still-Face Paradigm:  
<https://www.youtube.com/watch?v=apzXGEbZht0>

# Development of Intentionality

- **Communicative intentionality**

- Intending to communicate, not just communicating inadvertently
- Three stages of development:

1. **Pre-intentional stage**

- Goals are inferred by adults, but only communicated inadvertently by infants

2. **Intentional stage**

- Infants communicate intentionally, often with gestures

3. **Symbolic stage**

- Use of abstract symbols to communicate (i.e. words), with or without gestures

# 1. Pre-intentional Stage (0-8 months)

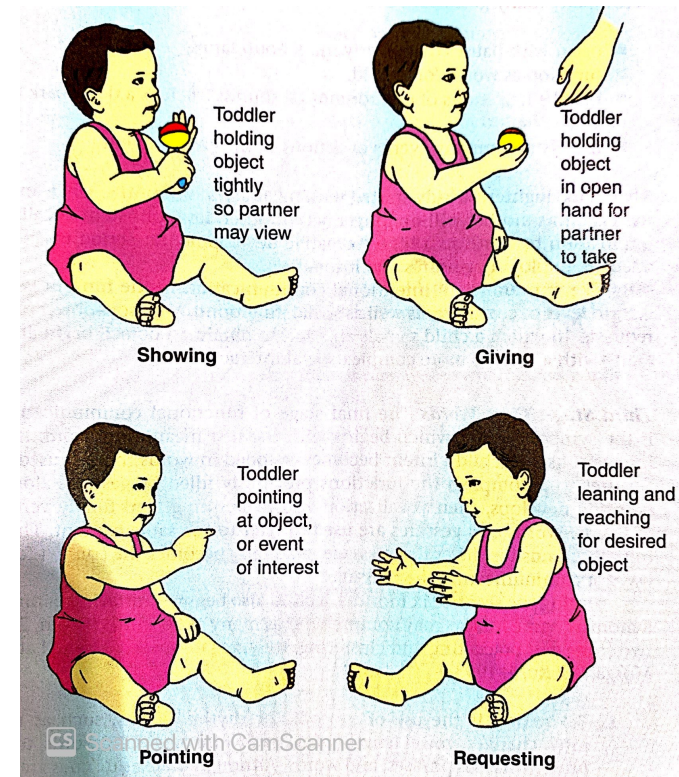
- Intention inferred by adults (i.e., “mind-reading”)
  - Adults learn to interpret their infant’s different types of cries (e.g., hunger v. pain v. tiredness)
- **Attention interactions**
  - Infant attends to and/or responds to stimuli
- **Contingency interactions**
  - Infant learns that their behavior usually begets an adult interaction/response; behavior is undifferentiated (e.g., cries when hungry, cries when he wants to interact with someone, cries when he wants a toy)
- **Differentiated interactions**
  - Behaviors become more specific to desired outcomes (e.g., reaching to be picked up)

## 2. Intentional Stage (8-12 months)

- Intentional communication begins to emerge!
- Communication is characterized by:
  - Eye contact
  - Conventional gestures, vocalizations, or both
  - Persistence – if at first you don't succeed, try try again!
- Behavior coordinated, can be modified or repeated if the message isn't understood

# Infant Gestures

- *Showing* tends to emerge first
- Then other conventional gestures:
  - *Giving*
  - *Pointing*
  - *Requesting*
- **Idiosyncratic/Nonconventional gestures:** unique to the infant
- Eventually gestures are paired with vocalizations, including **phonetically consistent forms (PCFs)**
  - Using the same phonetic form to refer to the same meaning, even though this form is not a meaningful word of the language
- <https://www.youtube.com/watch?v=jdX0SrP40YE>



# Communicative Functions of Gestures

- Protoimperative: requesting
  - (“Hey, I want that!”)
- Protodeclarative: initiating or maintaining shared interest/attention
  - (“Hey, check that out!!”)
  - Make up about 30% of interactions
  - Only occur in the presence of a communicative partner (i.e., reflect intentional communication)



# Baby sign

- Baby sign: the use of gestures *adapted from* a natural sign language to support infant communication
  - NOTE: Baby Sign is NOT sign language
    - Sign language involves more than just words/symbols: it involves *structure* (phonological, morphological, and syntactic structure)
    - Baby Sign does not involve any kind of structure!
  - Motivations: enable earlier effective communication from infants for a variety of *putative* advantages: cognitive, linguistics, emotional
  - <https://youtu.be/JCIX7lhO0x4>
- Empirical evidence on the efficacy of baby sign is sorely lacking
  - No firm conclusions can be drawn except for that it probably doesn't hurt to use baby sign

# Mueller et al. (2014)

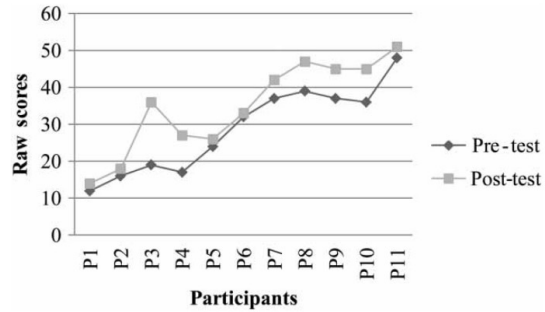
## *Independent variable*

The independent variable for the current study was the training provided to the caregivers in a five-week-long Baby Sign workshop. Parents learned nearly 200 signs throughout the workshop and, more importantly, learned ways to implement baby signs at home with their children. Several materials were used during the training of the course in order to facilitate with the instruction of Baby Signs.

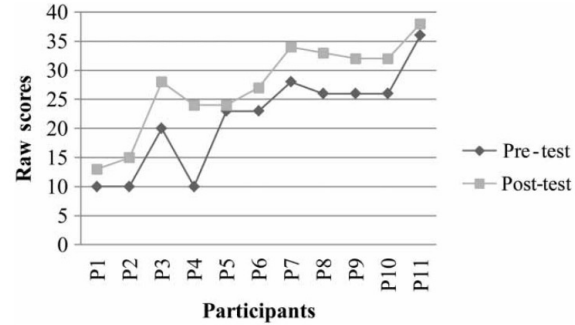
- (1) Signs for each week were displayed in a PowerPoint presentation which contained a still image and label for each sign.
- (2) At the beginning of the workshop, the parents were given binders and each week they were given handouts with a still image of each sign, the label, a brief description of how the sign is produced, and ways the sign could be implemented at home.
- (3) Upon the conclusion of the workshop, parents were given a DVD containing videos of a certified sign language interpreter demonstrating the production of all the signs presented in the workshop.
- (4) Food, toys, and books were used during the workshop to demonstrate ways the parents could implement baby sign at home with their children during various daily routines.

# Mueller et al. (2014)

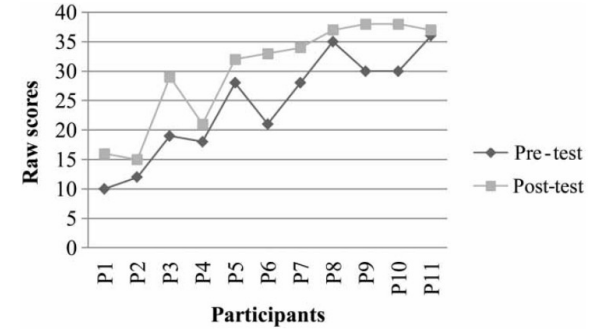
## Communication



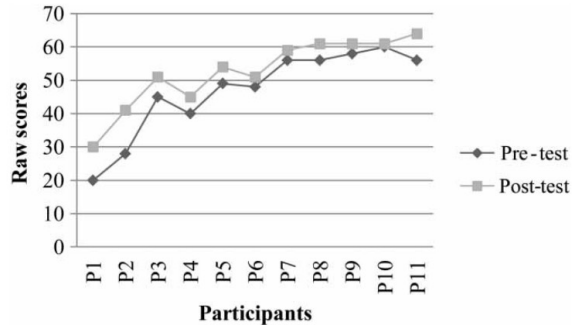
## Cognitive



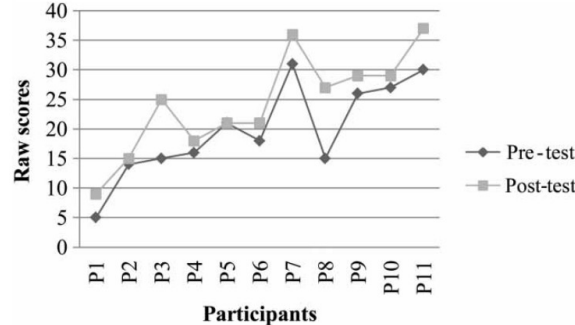
## Social



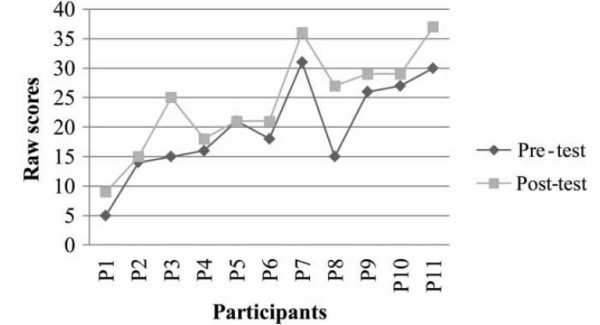
## Physical



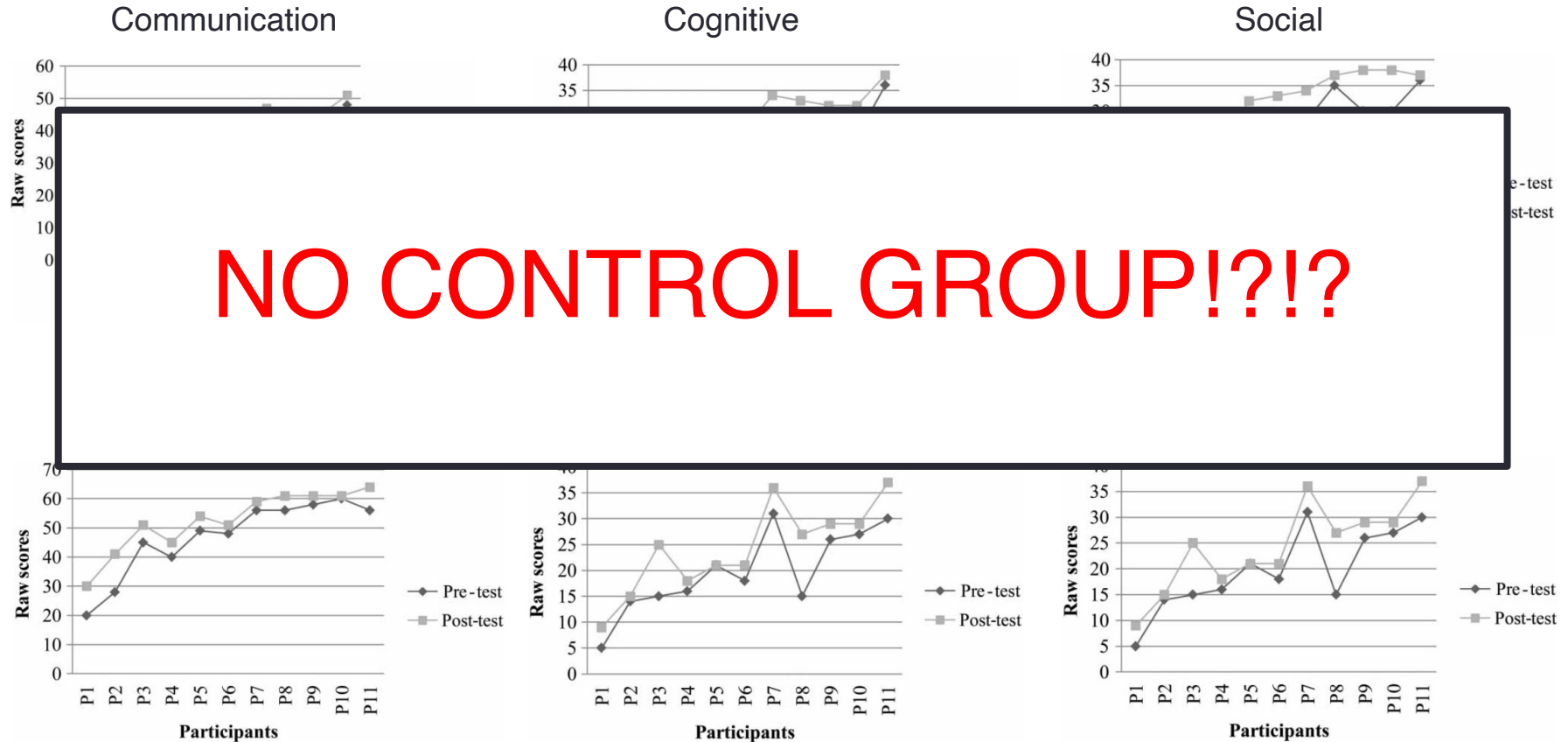
## Adaptive Behavior



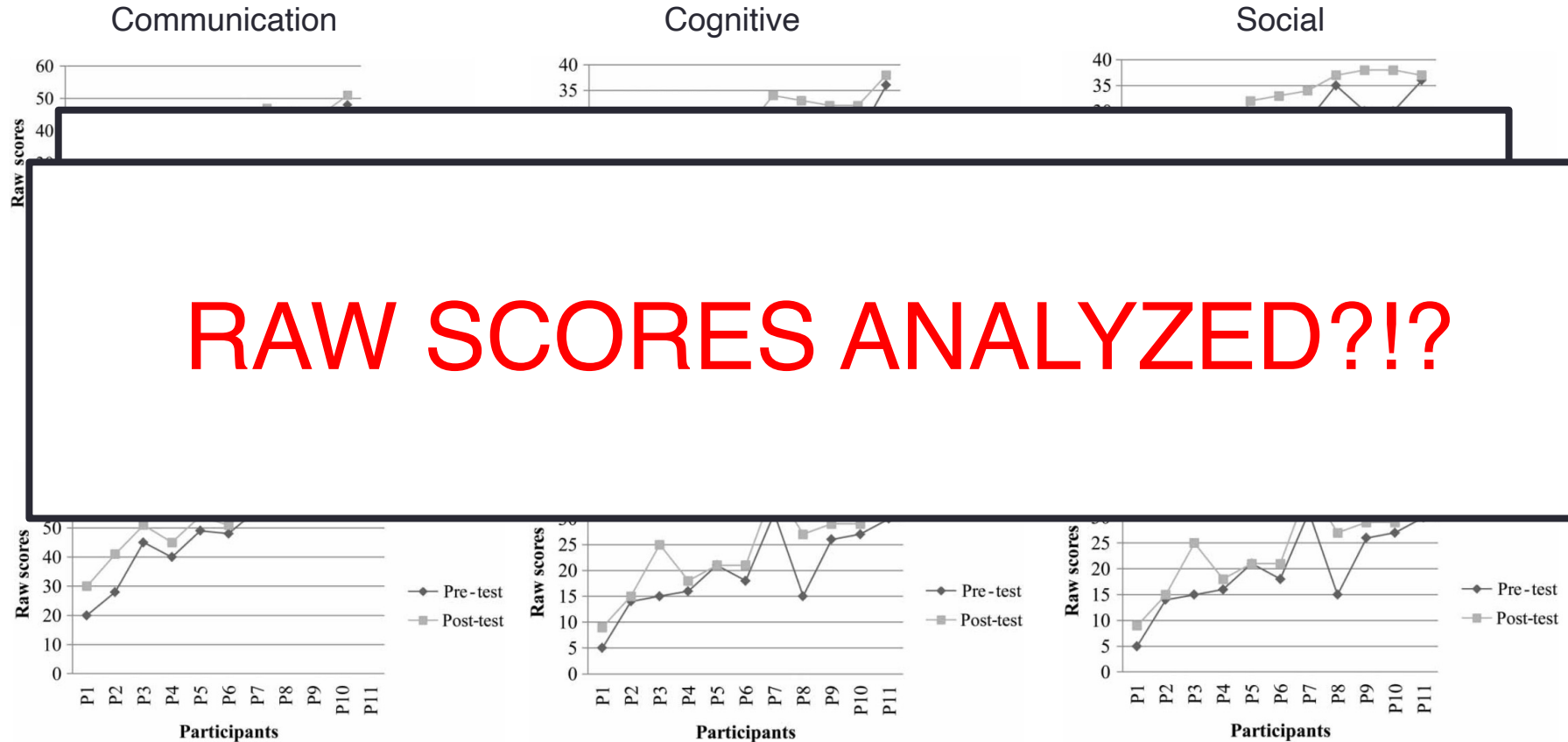
## Fine Motor



# Mueller et al. (2014)



# Mueller et al. (2014)



# Baby sign

- Baby sign might be least useful for many of the children currently receiving it: higher SES, typically-developing children
- Might be a useful intervention tool for certain disabilities:
  - Late talkers
  - Down syndrome
  - Autism
  - Stuttering
  - Etc.

## 3. Symbolic Stage (12+ months)

- First meaningful (i.e. real) words
- Words used alone or with gestures
- Words begin to replace the need for gestures

# Symbolic Stage (12+ months)

- Infants Identification of symbolic units in caregivers' speech
- **Bracketing:** use of prosodic/rhythmic cues to "chunk" utterances into meaningful units
  - Mostly useful for identifying big units (e.g. sentences/phrases)
- **Clustering (statistical learning):** using phonotactic probability (the likelihood that given speech sounds follow each other within syllables/words vs. between words)

# Child-directed speech

- Motherese/infant-directed speech/child-directed speech (again)
- Some useful features:
  - Short utterance length, simple syntax
  - Small vocabulary, focused on objects in the world
  - Topics limited to here and now
  - Heightened use of facial expression and gestures
  - Frequent questioning and greeting
  - Treating infant behaviors as meaningful/important; engaging in turn-taking with infant
  - Modification of intonational contours; pitch and intensity
  - Verbal rituals (stereotyped phrases/scripts of interaction)

# Child-directed speech

- **Gaze shifting:**

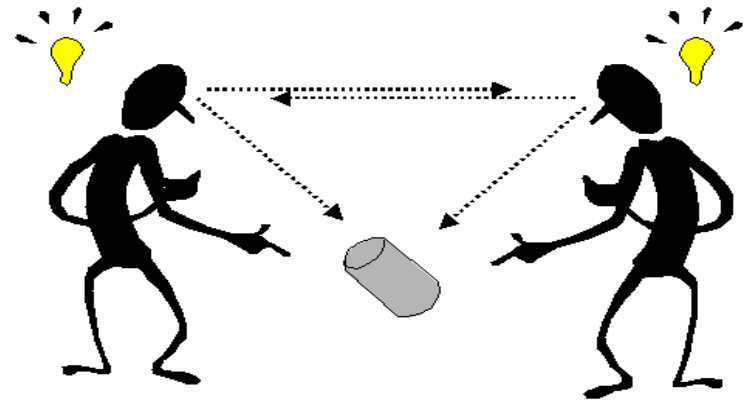
- When baby makes eye contact, then looks at the same object that the caretaker is looking at
- 10-month-olds who gaze-shift more when hearing a foreign language showed increased brain responses to that language (Conboy, Brooks, Meltzoff, & Kuhl 2015)

# Joint Reference



# Joint Reference

- The process of sharing focus on a common entity
  - Hugely important to social and language/communication development
- Joint attention: sharing visual focus on common object/location
  - Lack of joint attention is one of the most consistent early signs of autism



<https://youtu.be/1Aea8BH-PCs>

# Development of joint reference

- Phase 1: Mastering Joint Attention
- Phase 2: Intention to Communicate
- Phase 3: Gestures and Vocalization
- Phase 4: Names and Topics

# Joint attention

- True joint attention (Tomasello): mutual knowledge is key, i.e. knowing together that you are attending to the same thing (as opposed to independently looking at the same thing, as in a movie theater)

# Mastering joint attention

- 0-6 months: Infant responds to adults' attempts to direct their attention
  - **Joint attention:** Looking at objects/events along with caretaker
- 7-8 months: Infant begins to attempt to direct the adult's attention (e.g., reaching) but
- 8-12 months: Use of pointing and vocalization emerges
  - Protoimperatives and protodeclaratives emerge
  - Does not coordinate with eye gaze to the adult
- 12 months: joint reference established
  - Child begins to refer to specific objects more, which prompts caretaker to use more object/event labels
  - Increasing control by the infant, with increasing response by the mother, e.g. asking for child to elaborate or clarify their intentions

# Joint action

- **Joint Action:** routine actions which provide a structured interaction
  - Facilitates the development of language and communication
  - Reflexive crying -> initiation of interaction
    - Crying starts as an immediate reflex/demand and ends up as an anticipatory request
- Play between infants and caregivers occurs early and often
  - E.g. “copycat” -> caregiver imitates infant’s behavior
  - Imitation includes purposeful modifications of infant behavior
    - E.g. exaggeration or moderation (e.g. loud cry -> mellow crying)
  - Games provide an important context for practicing the use of speech for communicative purposes

# Sequence of social play

- Catching each other's glance
  - Greeting/initiation
- Mutual Gaze, Maintenance of gaze
  - Indication of readiness
- Engagement
  - Sequences of variable length with clear pauses in-between
- Time Out
  - Pauses in-between periods of rest in-between engagements
  - Readjustment of interaction

# Routines

- Consistent types of interaction (“scripts”) that allow for limited variation
  - E.g. bathing/dressing, each instance is variable but retains common elements
    - Can identify the parts of a feeding “script”?
  - Eases the difficulty of participating in an interaction

# Turn-taking

- Common element of interactions & communication
  - Underlies later, more complex turn-taking behavior in communication/language
  - Object gaze vs. **Mutual gaze**
    - Mutual or dyadic gaze has heavy social and communicative implications
    - Intensified interest/attention on the other partner, important for building attachment/bonding
    - Can be accompanied with increased stress/anxiety

# Recap

- Social interactions are enormously important for linguistic development:
  - Joint reference (including joint attention)
  - Joint action and other social interactions
- Transition from pre-intentional stage, to intentional stage, to fully symbolic interaction