**Six-month-old Infants’ Scanning of Meaningfully Distinct Silent & Audiovisual Infant-Directed Faces**

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**Introduction**

- Habitation procedures found that 6-month-old infants categorize audiovisual approving and comforting infant-directed (ID) speech (Jackson et al., 2009)
- Features of ID speech (Fernald, 1989; Shepard et al., 2012)

<table>
<thead>
<tr>
<th>Example</th>
<th>ID Speech</th>
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<tbody>
<tr>
<td>Approving</td>
<td>“Good job!” wide eyes, raised eyebrows, greater teeth visibility, smiles</td>
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<tr>
<td>Comf</td>
<td>“Poor baby!” sad eyes, furrowed eyebrows, frowning lips</td>
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</tbody>
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- Silent ID & Adult-Directed (AD) Speech
  - 6-month-olds: more attention to mouth than eyes (Shepard, 2013)
  - Increased attention to mouth at 6 months due to language development
  - 4- to 9-month-olds: Left Visual Field Bias (Wheeler, 2010, Liu et al., 2011)
  - Possible interpretations
  - Right hemisphere advantage in face/ emotion processing, as information in the left visual field relays to the right hemisphere
  - Asymmetry in facial expressions
- Audiovisual ID & AD Speech
  - 6-month-olds: equal attention to eyes & mouth (Lewkowicz & Hansen-Tift, 2012)
  - 5- to 8-month-olds: more attention to VL eye than VR eye (Smith et al., 2013)

**Results**

1. **Group (silent, AV) x ID Category (approval, comfort) x AOI (eyes vs. mouth)**
   
   No significant main effect or interactions of group

   **ID Category x AOI**
   - F (1, 69) = 3.77
   - p = .056; $\eta^2_p = .05$
   - App: Mouth > Eyes (p = .014)
   - COM: Mouth > Eyes (rs = .719)
   - EYES: COM > App (p = .222)
   - MOUTH: COM = App (rs = .205)

2. **Group (silent, AV) x ID Category (approval, comfort) x AOI (VL vs. VR)**
   
   **AOI (VL, VR)**
   - F (1, 69) = 4.83
   - $p = .031; \eta^2_p = .07$
   - VL (.46) > VR (.33)

   **ID Category x AOI**
   - F (1, 69) = 9.76
   - $p = .003; \eta^2_p = .12$
   - App: VL > VR (p < .001)
   - COM: VL = VR (rs = .506)
   - VL: App > COM (p = .003)
   - VR: COM > App (p = .005)

**Discussion**

- **Auditory input had little impact on attention to specific facial features**
  - Speech component did not affect attention to Eyes vs. Mouth or VL vs. VR
  - With findings of no attention to mouth during silent and audiovisual positive ID speech (Shepard, 2013)

- **6-MONTH-OLDS’ SCANNING OF ID FACES APPEARS TO BE DRIVEN BY NON-AUDITORY FACTORS (I.E., MOVEMENT, OTHER VISUAL INFORMATION) OF APPROVING & COMFORTING ID SPEECH**

Different scanning patterns suggest infants detect distinctive features of approving and comforting ID faces

- **Eyes vs. Mouth**
  - More attention to mouth than eyes for approving, not comforting messages
  - Greater teeth visibility and smiling in approving than comforting ID speech (Shepard et al., 2012)
  - More attention to comforting eyes than approving eyes
  - Consistent with findings in adults (Eisenbarth & Alpers, 2011)
  - Initial fixation on sad eyes compared to eyes of other expressions

- **VL vs. VR Side of Face**
  - More attention to approving VL than both approving VR and comforting VL
  - Supports right-hemisphere hypothesis of emotion processing (Tsakirou, 2010)
  - Stronger patterns of right hemisphere lateralization found for positive & higher intensity emotions
  - More attention to VR side of face for comforting than approving messages
  - Supports facial expression asymmetry (Richardson et al., 2000)
  - Greater movement in the left side of the face (VR) for negative emotions, right side of the face (VL) for positive emotions

- **Equal attention to silent and audiovisual approving faces, but more attention to silent than audiovisual comforting faces**

- These results identify facial features 6-MONTH-OLDS MAY USE TO DIFFERENTIATE AND CATEGORIZE APPROVING & COMFORTING ID SPEECH (Atchison et al., 2009)

**References**

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