This research examined if female faces support IDS categorization by 6-month-old infants

- Infant-directed speech (IDS) may communicate speakers' affect to infants
  - Adults vary IDS as a function of context and intent (Fernald, 1992; Pipp arouser et al., 1997; Stein et al., 1982)
  - 6-month-olds, but not 4-month-olds, categorize approving and comforting IDS while viewing a checkboard stimulus (Moore, Spence, & Katz, 1997; Spence & Moore, 2003)
- These findings are consistent with research suggesting faces:
  - Provide social context for infants' discrimination of vocal affect (IDS) (Enright & Mir, 1999; Walker & Lomax, 2001)
  - Are more easily associated with IDS than with other stimuli (Pipp arouser et al., 1997)
  - Maintain 6-month-olds' attention in social interactions, more effectively than voices alone (Enright, 2001; Enright & Mir, 1999)
  - Social context of a female face facilitates 6-month-olds' categorization of IDS (Alsop & Spence, 2007)

Methods:

**Experiment 1: Static Face**
- **Participants:** N = 54 6-month-olds (M = 161.6 days, SD = 15.7 days)
- **Stimuli:**
  - Infant-directed speech: 8 approving and 8 comforting utterances recorded by speech mothers
  - Auditory stimuli: 80% approval, 20% comfort
  - Approvals:
    - F1: 399.86 Hz (SD = 79.57); F2: range 17.70 – 275.93 Hz
  - Comforts:
    - F1: 221.44 kHz (SD = 20.22); F2: range 17.08 – 78.82 Hz
- **Procedure:**
  - Habituation to approvals or comforts
  - Habituation onset: 3 consecutive trials decreased to 50% (Cohen, 2002; Cohen & Moore, 2008)
  - Four Test Trials:
    - Control Trial: 2 novel IDS utterances from habituation category
    - Experimental Test Trials: 2 novel IDS utterances from different IDS category than habituation
- **Results:**
  - No significant categorization effects

**Experiment 2: Between Design**
- **Participants:** N = 26 6-month-olds (M = 188.7 days, SD = 10.8 days)
- **Stimuli:** Same as experiment 1. Both IDS stimuli and static face presented
- **Procedure:**
  - Habituation same as experiment 1
  - Between Test Design: Similar to Spence and Moore (2003) design
    - Control Condition: 2 novel IDS utterances from habituation category
    - Experimental Condition: 2 novel utterances from different IDS category than habituation
- **Results:**
  - No significant categorization effects

**Experiment 3: 2-Monitor Design**
- **Participants:** N = 30 6-month-olds (M = 169.8 days, SD = 7.7 days)
- **Stimuli:**
  - **Auditory Stimuli**: Same as Experiment 1
  - Visual stimuli: Same as Experiment 1. Also, visual stimuli except 2 images shown side by side to replicate previous 2-monitor design (Spence & Moore, 2003)
- **Procedure:**
  - Same as experiment 1
  - Habituation
  - Within-Subjects Design
- **Results:**
  - No significant categorization effects

Discussion:
- Previous research has shown that 6-month-olds categorize approving and comforting IDS (Moore, Spence, & Katz, 1997; Spence & Moore, 2003). A static or synchronous moving face seems to disrupt this ability.
- Different visual information supports IDS categorization at 4 and 6 months of age:
  - IDS-context: IDS with checkboard stimulus (Moore, Spence, & Katz, 1997; Spence & Moore, 2003) but not a static or synchronous moving face
  - 4-month-olds: Can distinguish between checkboard stimuli (Spence & Moore, 2003) but need the visual context provided by auditory face (Alsop & Spence, 2007)
- As infants become more experienced with faces and voices, asynchronous IDS stimulus may interrupt 6-month-olds' attention to the IDS category boundaries. Further research with synchronous audio and visual stimuli is needed at both ages to investigate infants' categorization of naturalistic IDS.

Acknowledgements:
- The authors wish to thank the families of the infant participants for their time and interest in this project.
- This research was funded by a UTSA Faculty Research Initiative Award to Janet S. Alsop.
- Collection and analysis of IDS stimuli were conducted by JDP grant M01RR016471 (Jefferies, Cohen, and Alsop).
- Corresponding Author: Kaitlin Kuhnt, Kitschik Kuhnt, University of Texas at Dallas
- Lab Webpage: www.alsop.spicelabs.net