Infants’ Attention to Auditory and Visual Stimuli
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Abstract
This study compared infants’ attention to dynamic auditory and visual stimuli. Six-month-olds experienced auditory (infant directed speech) and visual stimuli (emotionally expressive faces) during two different habituation paradigms. Attention (looking time) to auditory stimuli was greater than attention to visual stimuli, suggesting that auditory information is more effective at maintaining infants’ attention. The findings have implications for interpreting assessments of infant processing based on attention to visual stimuli only. Additional research is needed to explore the relation between auditory and visual attention and if auditory attention provides unique information about cognitive processing.

Introduction
Much research has examined infant attention to visual static stimuli. Individual differences in looking time are related to concurrent and later measures of cognitive performance (Colombo et al., 1995, 1998; Rose et al., 1986, 2002).
- Short lookers perform better than long lookers.
- Short looking associated with faster processing and better recognition memory (Rose et al., 1999, 2001).

Auditory Experiment: Categorization of Infant-Directed Speech
Infant-Directed Speech (IDS) Stimuli:
- Recordings (15) of Comforting & Approving female IDS

Habituation Paradigm:
- On each trial, 1 of 6 IDS stimuli spoken by different voices
- Habituated to comfort or approval
- Habituation criterion: 3 consecutive trials decreased 50% or below 1st 3 trials of habituation
- (Habit 2000; Cohen, Atkinson & Chaput, 2000)

Visual Experiment: Categorization of Dynamic Facial Expressions
Facial Expression Stimuli:
- Videos (6) of Happy & Disgust dynamic female faces
- DOD/DARPA Human ID project (O’Toole et al., 2005)

Habituation Paradigm:
- On each trial, 1 of 3 faces presented in series
- Habituated to happy or disgust
- Habituation criterion: 3 consecutive trials decreased 50% or below 1st 3 trials of habituation
- (Habit 2000; Cohen, et al., 2000)

Results
Mean looking time (per trial) during habituation:
- Auditory IDS: (M = 9.28, SE = .78) > Visual DF: (M = 6.69, SE = .51)
- t(90) = 2.85, p < .01

Visual attention measures may not be assessing general purpose processing mechanisms.
- Rather, responses depend on stimulus properties in addition to processing speed and strategies.
- The results have implications for interpreting assessments of infant processing and cognitive performance based on attention to visual stimuli only.
- More research comparing auditory and visual attention is needed to determine if short and long looking time is related to short and long listening.

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Discussion
Infants’ attention is better maintained by auditory IDS than dynamic visual face stimuli.
- Results consistent with finding that addition of auditory track to visual facilitated infant attention at 6 months (Shaddy & Colombo, 2004).
- Infants may more easily disengage from visual than auditory stimuli.

Purpose and Methods
The purpose of this study is to compare infants’ attention to dynamic auditory and visual stimuli presented in infant-controlled habituation procedures.

Participants and Design
- 6-month-old infants (n = 31, M = 165 days, SD = 15 days)
- Attention to stimuli compared in 2 infant-controlled categorization experiments (counterbalanced)
- Auditory stimuli: infant-directed speech utterances spoken by females
- Visual stimuli: videos of female emotional expressions
- Stimuli presented contingent on attention-getting visual stimulus
- Each stimulus presented for 30 s or until 1 s look away ended trial