

Development of Attention, Intersensory Perception, and Social Orienting in Typical Infants and Children with Autism

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General Goals of Research Program



- What factors organize and constrain early selective attention, perception, and learning?
- Integrate research on TD with atypical development (ASD) under a common developmental framework (attention to social events)
- Discover general developmental principles by testing human and animal infants (R. Lickliter's lab)
- Focus: Intersensory perception; multimodal world– ecological validity
- What sights and sounds belong together? Importance of perceiving unitary social events.

Amodal Information: A Key Factor

- Not specific to a particular sense modality – redundant across more than one sense
- Temporal, spatial, or intensity information
- eg: Person talking - tempo, rhythm, synchrony, intensity changes are common to the face and voice
- All events provide amodal information
- Infants good at detecting amodal information – one of the most important capabilities underlying the development of intersensory perception

Research: Detecting Amodal Information and the IRH

(Amodal information is highly salient in multimodal stimulation)

- Infants detect rhythm and tempo



- Affect and prosody



- Maternal call



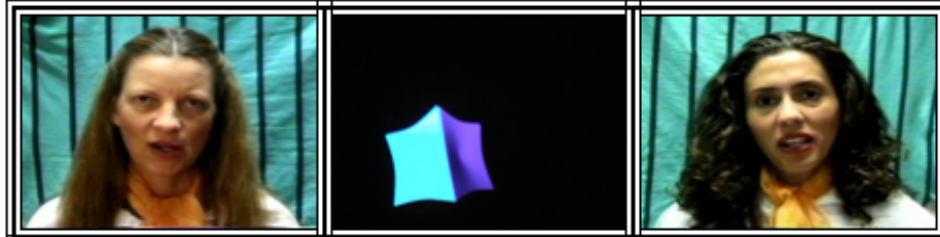
Atypical Development: Autism (ASD)

- ASD: Social orienting impairment – cascading effects on language and social development
- What makes social events salient to infants?
Hypothesis: High intersensory redundancy

BAAP: Behavior Attention Assessment Protocol

Social Neutral

Moderate redundancy

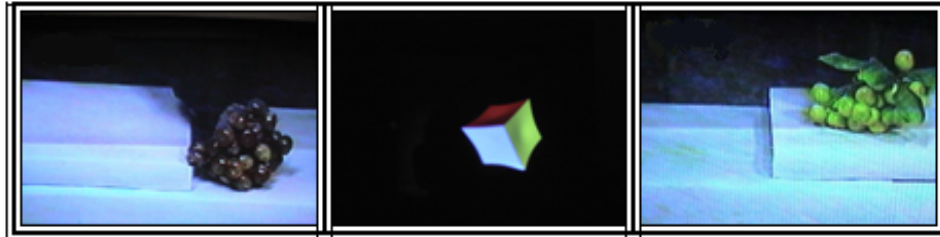


Social Positive

High redundancy



Nonsocial



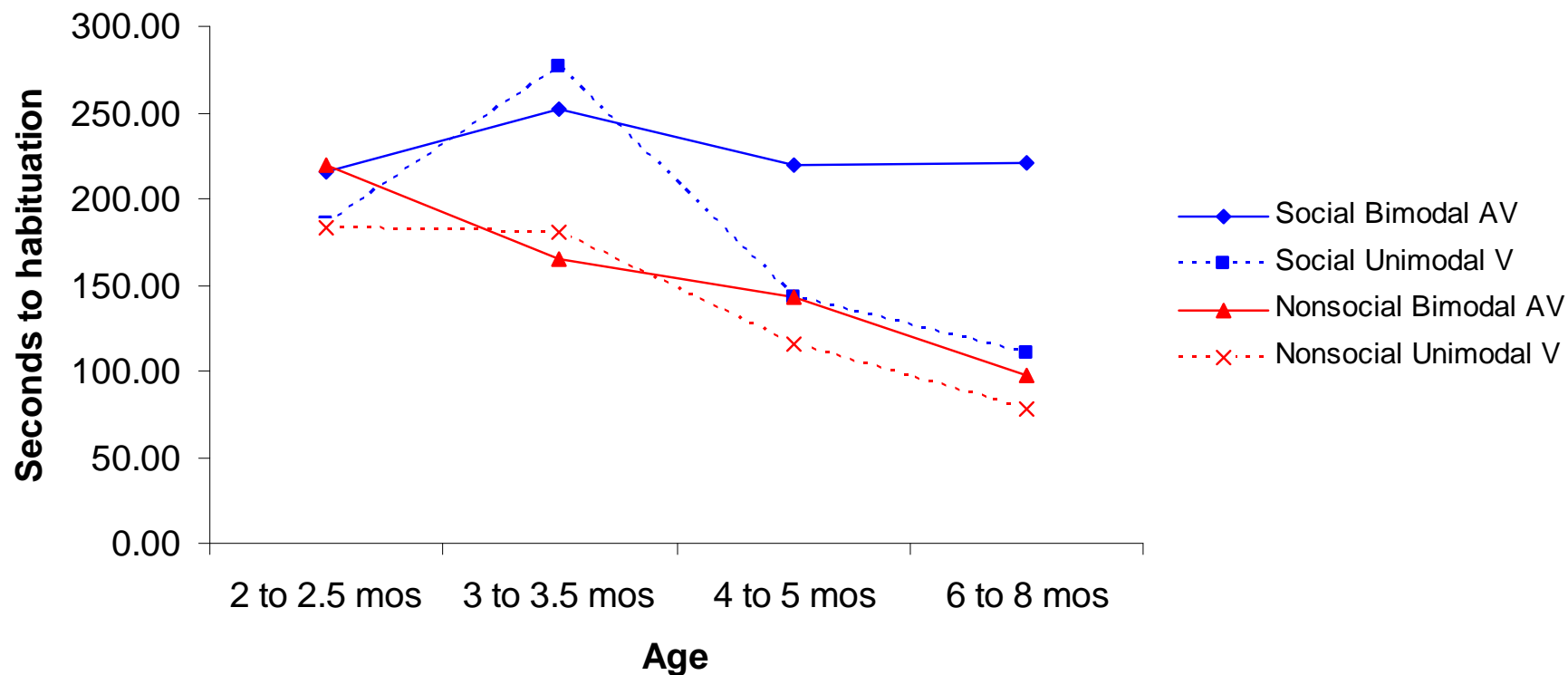
•Measures 4 building blocks of attention for social vs nonsocial events:

- Attention orienting, maintenance, disengagement, intersensory processing
- ASD show deficits in attending to social events, particularly when there is competing stimulation; look longer to nonsocial events

Importance of Integrating Research on Autism and Typical Development

- Social orienting impairment in autism points out need to understand typical development of social orienting → help identify atypical attention patterns in infancy
- Little systematic developmental research on social orienting
 - Only a few ages; need to link infant and child
 - Mostly unimodal, static stimuli
 - Little dialogue between researchers of typical and atypical development
- My goal – Integrate TD and ASD by investigating similar questions across a wide age range

Attention to Audiovisual Social Events is Maintained Across Development



Future Research Directions

- Investigate attention to social and nonsocial events across wide age range, infancy-second year (when autism is typically diagnosed)
- Discover developmental course and mechanisms underlying the emergence and development of attention to social events in humans and animals

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