

4.5-Month-Old Infants Prefer Nonsocial Over Social Events When Event Variability Is Manipulated

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Background

Typically developing infants show an emerging preference for social over nonsocial events across development (Bahrick et al., 2009; Courage et al., 2006; Ellsworth et al., 1993). For example, infants showed longer looks and processing times to dynamic audiovisual social than nonsocial or silent events by 4-6 months of age (Bahrick et al., 2009). However, little research has investigated the basis for this social preference. Compared to nonsocial events, social events typically provide more complex, variable, and less predictable sound and movement patterns, and greater amounts of audiovisual redundancy (Adolphs, 2001; Bahrick, 2010; Dawson et al., 2004).

Objectives

The present study assessed whether infants would show a preference for social or nonsocial events when event variability/complexity was manipulated. If greater event variability contributes to social preferences, then manipulating event variability such that social and nonsocial events are more comparable may attenuate social preferences.

Methods

Twenty 4.5-month-olds participated in a two screen preferential looking procedure with pairs of social and nonsocial events, approximately matched for variability level. Social events consisted of videos of 3 actors/actresses each counting, saying a rhyme, and delivering a monologue and nonsocial events consisted of videos of 3 objects (a xylophone, mechanical toy truck, and oscilloscopic images) each moving and producing sounds (see Figure 1). Low, moderate, and high variability levels for each event type were created by manipulating sound/movement temporal variability, pattern length, and number of repetitions of the pattern within each 30 s trial. Low variability events displayed frequent pattern repetition and little movement/sound variability (e.g., counting vs. musical scales), moderate variability events depicted longer patterns with 2-3 repetitions per trial and moderate temporal variability (e.g., a rhyme vs. short melody), and high variability events depicted patterns that did not repeat and showed high temporal variability (e.g., monologue vs. long musical passage). Side-by-side pairs of low, moderate, and high variability audiovisual social vs. nonsocial events were presented in three blocks of six 30 s trials, one block for each variability level.

Figure 1. Still images of dynamic audiovisual nonsocial and social events.

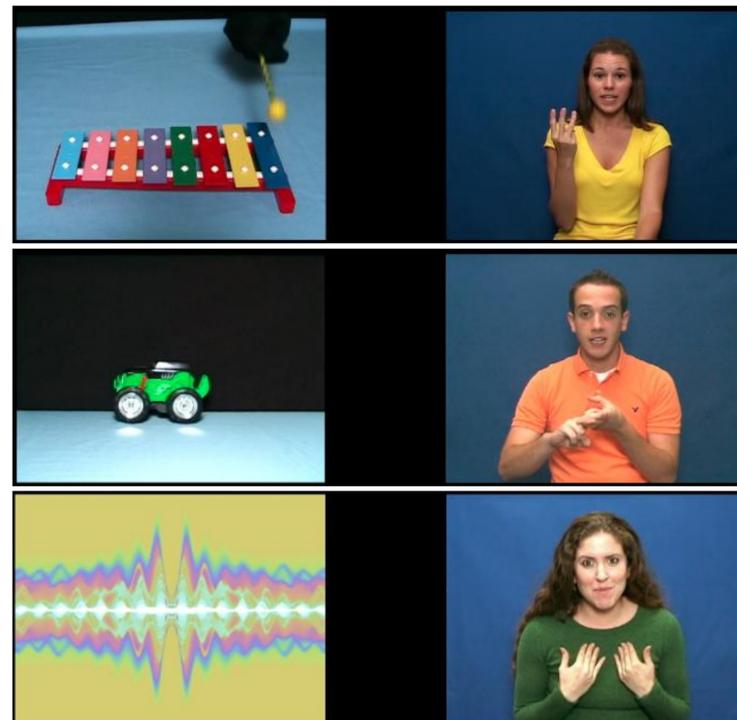
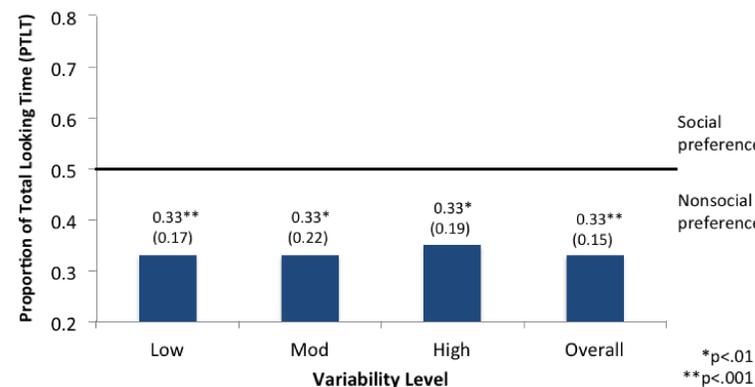


Figure 2. Proportion of total looking time (PTLT) to the social events for all trials (overall) and for each variability level (low, moderate, high). PTLT values below 50% indicate preferences for the nonsocial events.



Results

Single-sample *t*-tests on the proportion of total looking time (PTLT) to the social events against chance (50%) revealed that the mean PTLT to the social events was significantly less than chance ($M=.33$, $SD=.15$, $t(19)=-4.96$, $p<.001$). That is, infants showed a significant preference for the nonsocial events overall, and this was true for low, moderate, and high variability levels ($ps <.01$; Figure 2). To assess whether PTLTs differed as a function of variability, a variability level (low, moderate, high) repeated measures ANOVA revealed no significant effect ($F(2,18)=0.05$, $p=.95$).

Conclusions

Remarkably, when social and nonsocial events were paired in a two-screen procedure and variability level was roughly equated, 4.5-month-old infants showed a significant preference for nonsocial over social events overall and within each variability level. Results are inconsistent with previous research demonstrating greater attention to social than nonsocial events (Bahrick et al., 2009; Courage et al., 2006). This finding suggests that manipulating event variability may lead to preferences for nonsocial events at an age when infants typically show preferences for social events. Infant attention to social events may thus, in part, stem from their relatively high levels of variability compared to nonsocial events.

References

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