

5-Month-Old Infants Match Facial and Vocal Expressions of Other Infants

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Abstract

Research has demonstrated that infants recognize emotional expressions of adults in the first half-year of life. This study assessed the ability of infants to perceive emotional expressions in a new domain, that of other infants. In an intermodal matching procedure, 5-month-old infants heard either a happy or angry vocal expression and were subsequently presented with happy and angry facial displays. Results demonstrated that the infants matched the vocal expressions with the affectively congruent facial expression. The findings suggest that by 5-months of age, infants detect information common to facial and vocal displays conveying affect of other infants.

Introduction

The ability to perceive and discriminate emotional expressions is fundamental to communication and social interaction. Facial and vocal expressions convey affect and intent in communication, provide a basis for fostering shared experience, and guide infant exploratory behavior. Research has shown that from an early age infants are sensitive to social stimuli. Only hours after birth, newborns visually follow face-like stimuli. Between 5- and 7-months of age, infants are able to match facial and vocal affective expressions in dynamic audio-visual displays of unfamiliar adults (Walker-Andrews, 1997). Research has also demonstrated that 3 1/2-month-old infants can match the facial and vocal expressions of their mothers but not the expressions of an unfamiliar woman (Kahana-Kalman & Walker-Andrews, 2001). Prior studies have focused primarily on infant perception of adult facial expressions. The present study explores the ability of infants to perceive, discriminate, and match facial and vocal emotional expressions in a different domain, that of their peers.

Stimuli

Filmed episodes of facial and vocal expressions of different infants while they watched a toy moving in front of them were selected to create the stimuli. Facial expressions of two infants were chosen who exhibited happiness/joy and the displays of two other infants were chosen who exhibited anger/frustration (see Figure 1). Vocal expressions of two infants were chosen who produced happy/joyous babbling sounds and the expressions of two other infants were chosen who produced angry/frustrated vocal expressions.

Procedure

Sixteen 5-month-old infants were tested in a modified intermodal matching procedure using successive trials of vocal and visual stimuli. Infants first heard a vocal expression for 5 seconds with no visual accompaniment. Then two films were played side by side, one depicting an infant with a frustrated/angry expression, and another depicting a different infant with a happy/joyous expression for 10 seconds. Trials of successive vocal and facial expressions were presented across two blocks of 6 trials each. Infants were randomly assigned one of two pairs of angry/frustrated vs. happy/joyous facial and vocal displays. Vocal expressions were presented in one of two random orders and the lateral positions of the angry versus happy displays were counterbalanced across trial blocks. The soundtrack emanated from a speaker located between the two video images so that infants could not localize the sound at one screen or the other.

Figure 1



Figure 2a

Proportion of Total Looking Time (PTLT) to the Affectively Matched Facial Displays

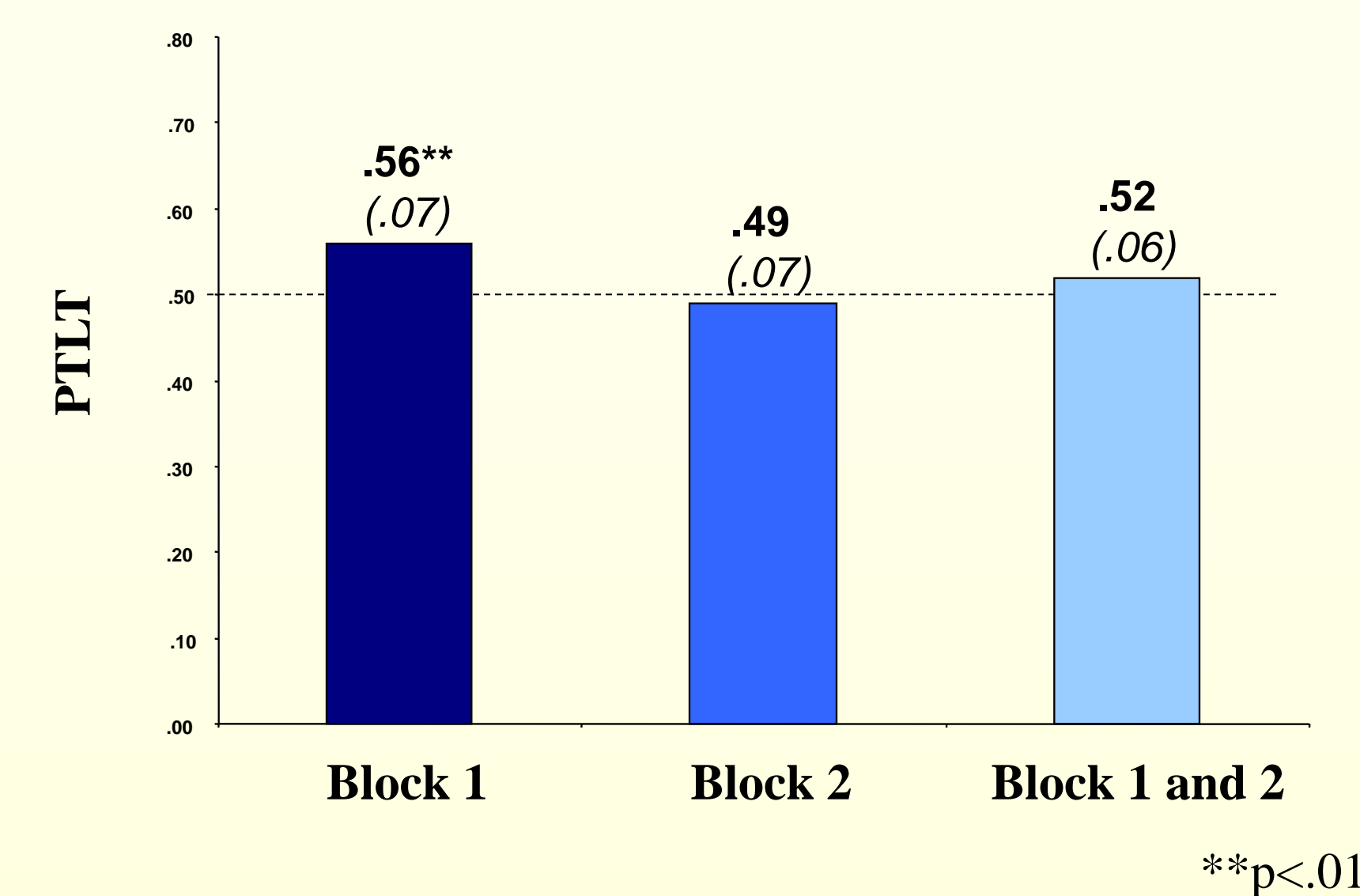
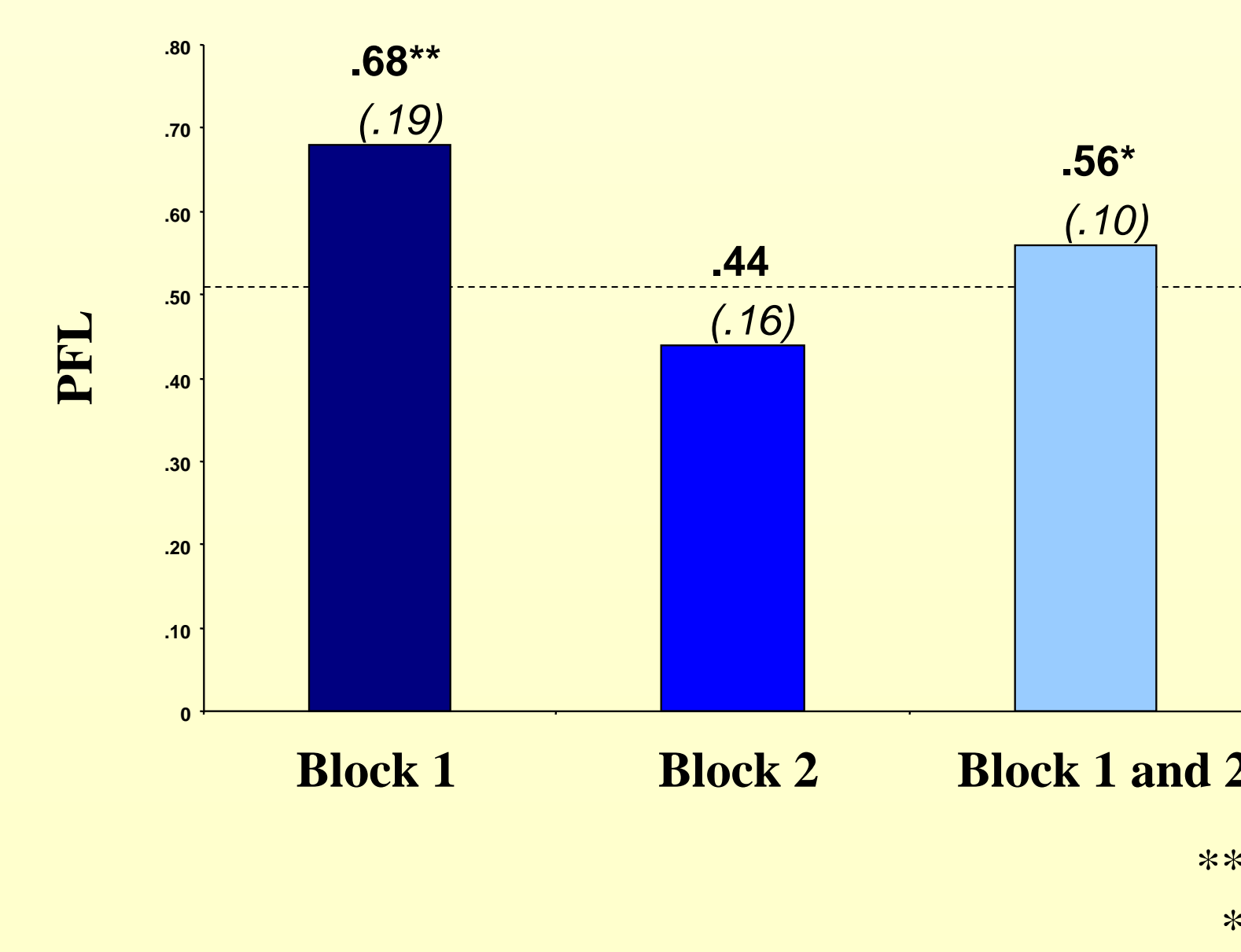


Figure 2b

Proportion of First Looks (PFL) to The Affectively Matched Facial Displays



Results

The proportion of total looking time (PTLT) and the proportion of first looks (PFL) to the affectively matched facial expressions served as the dependent variables. Results indicated that infants showed a significant PTLT to the matching facial and vocal expressions during the first block of trials according to a single-sample t-tests against the chance value of .50 (Figure 2a). Infants also showed a significant PFL on block 1 and on blocks 1 and 2 combined (Figure 2b).

Conclusion

These results demonstrate that by 5-months of age, infants detect, discriminate, and match the facial and vocal affective displays of other infants. They can also use this information to direct intermodal exploration of faces and voices. Further, given that the facial and vocal expressions were portrayed by different infants, matching was apparently based on detection of a general, common affective valence, rather than on face-voice synchrony or on any information specific to particular facial or vocal displays. One plausible explanation for these findings is that detection of affect in peers is facilitated by familiarity with the self and ones' own affective expressions. Infants of 5-months have ample experience with their mirror images and are adept at detecting visual-proprioceptive relations generated by mirror stimulation (Bahrick, Moss, & Fadil, 1996; Bahrick & Watson, 1985).

References

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