



Infants' Understanding of Emotional Expressions: Using Information for Oneself and to Predict Actions of Others

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Abstract

Understanding others' emotions is an important aspect of social and cognitive development. Past research has shown that, within the first year, infants are able to extract information from others' emotions to guide their response to an ambiguous object. Using a looking-time paradigm, we examined whether 18-month-old infants can form expectations concerning an individual's actions toward an object from emotion expressed toward the object. Infants were familiarized to an actor expressing either a happy or fearful expression toward an ambiguous object. After familiarization, infants saw the actor alternately either lean toward or away from the object. Infants demonstrated different expectations for these two emotions. They made accurate predictions concerning actions based on fear but not happiness. Infants in the fearful condition were also less likely to approach the toy in a play session after participating in the looking time paradigm. Preliminary evidence suggests that infants can make accurate predictions about actions following emotions under certain circumstances and their predictions may be closely tied to particular actions. Future studies will investigate this possibility further.

Introduction

Past research concerning infants' understanding of others' emotions is limited and provides mixed results. Research has demonstrated that infants can make predictions concerning others' actions based upon their focus of attention (Phillips et al., 2002; Sodian & Thoermer, 2004; Vaish, 2006), but their predictions concerning emotions remains unclear.

Previous work in our laboratory demonstrated that 18-month-old infants were able to make predictions concerning some emotions and not others (Gerson et al., 2007). In particular, infants made accurate predictions concerning actions following a positive emotion but made no predictions following disgust.

It is possible that the behavioral predictions from disgust were too difficult for infants to generate. To assess whether infants could generate a behavioral prediction for a different (and perhaps more salient) negative emotion, in these studies, we examine infants' understanding of actions following a fearful expression. In addition, we assess whether infants are able to use this information to guide their own actions.

Study 1: Looking-time paradigm

Participants

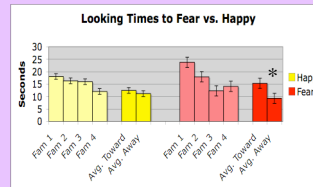
34 18-month-old infants (mean age=17.94; N=18 in happy and N=16 in fear conditions)

Procedure

Infants viewed four familiarization trials in which an actress expressed either happiness or fear toward an ambiguous object. In test events, the actress expressed the same emotion and then either leaned away or leaned toward the toy.



Results



Infants looked significantly longer when the actress leaned toward the toy than when she leaned away from the toy after expressing fear ($t(15)=2.394, p<.05$). Infants did not look significantly longer at either event after the actress expressed happiness ($t(17)=.625, ns$).

Study 1: Social referencing paradigm

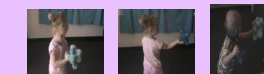
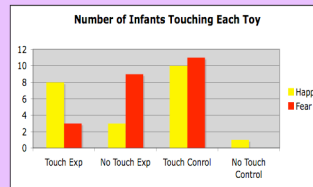
Procedure

Following the looking time paradigm, all infants were brought into a room in which the toy toward which the actress had just emoted and another ambiguous toy were sitting. Infants were placed directly in between the toys and encouraged to play. They were given 45 seconds to interact with either of the toys.

Results

Infants in the fear condition touched the experimental toy significantly less than those in the control condition, $\chi^2 =5.239, p=.022$. Infants in the two conditions did not differ in their touch of the control toy, $\chi^2 =2.39, p=NS$.

All data includes infants who touched both objects, leaving us with 11 infants in the happy condition and 12 infants in the fear condition.



Study 2

Rationale

The findings from Study 1, in conjunction with previous findings from our group (Gerson et al., 2007) indicate that infants' predictions concerning emotional expressions were affected by specific actions and context-specific. In order to further examine the circumstances under which infants can make accurate predictions concerning the actions following emotional expressions, we created a new paradigm in which the actress used a tool in order to move the object toward or away from her. This event provides a potentially equally plausible event for both emotions in that the object is moved (as in Gerson et al., 2007), but without physical contact (as this may seem unnatural following fear).

Participants

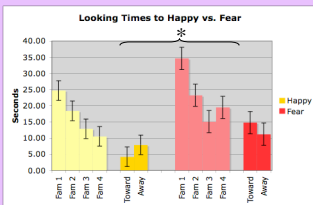
14 18-month old infants (mean age=17.9; N=7 in happy (6 male) and N=9 in fear (7 male) conditions)

Procedure

Infants viewed four familiarization trials in which an actress expressed either happiness or fear toward an ambiguous object. Infants then saw a trial in which the actress presented a tool. In test events, the actress expressed the same emotion and then either pushed the toy away with the tool or pulled the toy toward her with the tool.



Preliminary Results



A repeated measures ANOVA with emotion as between-subjects factor (happy vs. fear) and test trial type as a within-subjects factor (toward vs. away) revealed a significant interaction such that infants in the fear condition looked longer during toward trials and infants in the happy condition looked longer toward the away trials, $F(1,14)=4.94, p<.05$.

Discussion

In Study 1, 18-month-old infants differentially responded to happy and fear emotions and showed the predicted pattern of response to an actress expressing fear. This demonstrates that infants are able to make accurate predictions concerning negative emotions under certain circumstances and do not rely solely on attentional information.

Infants were also able to use this information to guide their own actions and were less likely to interact with the toy after viewing an actress express fearfully toward it.

These infants did not make accurate predictions when the actress expressed happiness toward the toy. Preliminary evidence, however, indicates that infants can make accurate predictions concerning both of these emotions when they are followed by particular actions. This demonstrates that predictions concerning emotional expressions were affected by specific actions and seem to be context-specific.

Follow-up studies will examine infants' predictions to these and other emotions in different contexts and continue to examine whether social referencing abilities are congruent with infants' predictions.

References

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