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Knothe, Jennifer Miranda

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Parental Communication About Emotional Contexts: Differences Across Discrete
Categories of Emotion

A Thesis submitted in partial satisfaction of the requirements for the degree of
Master of Arts in Psychological Sciences by Jennifer Miranda Knothe

Committee in charge:

Professor Eric Walle, Chair
Professor Rose Scott
Professor Alexandra Main

2017

The thesis of Jennifer Miranda Knothe is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

Alexandra Main

Rose Scott

Eric Walle, chair

University of California, Merced

2017

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Abstract

Parental Communication About Emotional Contexts: Differences Across Discrete Categories of Emotion

by Jennifer Miranda Knothe for the partial satisfaction of the requirements for the degree of Master of Arts in Psychological Sciences University of California, Merced 2017
Dr. Eric Walle, Chair

Previous research has investigated how parents talk with their children about emotions differing by positive and negative valence. This study examined how parents communicate about discrete categories of emotion (anger, sadness, disgust, fear, joy). Specifically, we examined how parents differentially directed attention to different contextual elements of discrete emotions. A sample of 39 infant-caregiver dyads with infants 18-months ($n = 20$, $M_{age} = 18.69$) and 24-months ($n = 19$, $M_{age} = 23.88$) participated in a picture book activity. Parents described 10 scenes depicting discrete emotions to their child. Each image contained a single child (emoter) displaying one of five emotions and an object toward which the emotion was directed (referent). Results showed that parents generally talked more about sadness, disgust, and fear contexts than joy contexts. Further analysis indicated that parents referenced the emoter more in anger and sadness contexts and talked about the referent more in joy, disgust, and fear contexts. Additionally, parents posed more questions to female than to male infants. Interestingly, no age differences were observed for any measure. These findings add to our understanding of infant emotional development and socialization by providing new insight into how parents talk about discrete emotions that may, in turn, differentially direct their child's attention in emotional contexts.

Introduction

Emotions provide information about the relationship between individuals and their environment. For example, appropriately engaging with a fearful individual involves coordinating attention not only to the fearful individual (i.e., the emoter), but also to the fear-eliciting stimulus (i.e., the referent). Thus, appreciating emotional contexts entails more than personal experience or perception of emotional signals; it involves understanding the relational significance of specific aspects of the emotional context and allocating attention to those aspects that are most relevant.

For the developing child, learning to attend to relevant aspects of the emotional context (e.g., the emoter, the referent) is a fundamental characteristic of emotional development (e.g., Baldwin & Moses, 1996). One mechanism through which children learn about emotions is through interactions with caregivers (Eisenberg, Cumberland, & Spinrad, 2009). Adults' communication about emotions can help guide the child's attention to particular aspects of emotional contexts (Thompson, 2006), thereby facilitating appropriate attention and responding.

The present study explored this topic by observing how parents guide their child's attention to specific contextual elements as a function of discrete emotions. Understanding how parents guide their children's attention to elements of discrete emotion contexts provides important implications for the parental socialization practices contributing to infant's later social and emotional development.

Parent-Child Conversations About Emotions

Research examining parent-child discussions of emotional events indicates that such conversations have a profound impact on infants' social and emotional development. Parent and family talk about emotions is predictive of children's understanding of emotions (e.g., Denham, Zoller, & Couchoud, 1994; Dunn, Brown, & Deardsall, 1991). Specifically, parent talk about emotions has been linked with increased prosocial behaviors (Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013), emotional understanding (Garner, Jones, Gaddy, & Rennie, 1997), emotional competence (LaBounty, Wellman, Olson, Lagattuta, & Liu, 2009), and theory of mind (Racine, Carpendale, & Turnbull, 2007; Ruffman, Slade, & Crowe, 2002). This research highlights the impact of early parent-child emotion conversations on children's understanding of emotion. However, the above studies collapsed across emotional contexts and did not examine how such conversations may differ between emotions.

A study by Lagattuta and Wellman (2002) more closely examined possible differences between emotions by comparing parent-child conversations about positive and negative emotions. Results indicated that parent-child conversations about negative and positive emotions differed in quality, but not in quantity. Specifically, in comparison to positive emotions, parent talk about negative emotions included larger emotion vocabularies, more frequent talk about the past, more mentioning of emotion causes, increased number of questions, and increased talk about other people. The reported bias of highlighting negative emotions has been observed frequently in developmental and adult research (for a review, see Viash, Woodward, & Grossman, 2010).

Though informative, the study by Lagattuta and Wellman (2002) only examined differences in parent talk by the valence (i.e., positive, negative) of emotion. However, a valence-based approach precludes a full understanding of the development of discrete categories of emotion (Viash et al., 2010; Walle & Campos, 2012). Examining how parents discuss and

direct attention to discrete emotions will help to further delineate the nuances of how parent-child emotion talk may scaffold children's understanding of emotion.

Attentional Allocation to Emotional Contexts

In considering potential differences in how parents may talk about discrete emotions with their children, it is important to recognize the distinct relational and functional elements of discrete emotional contexts. Although previous research has not examined how parents discuss discrete emotional contexts with their children, emotion theory and research investigating infant and adult responding to discrete emotional contexts provides some evidence as to how parent communication may differ across emotion contexts. Specifically, the literature suggests that specific emotions may differentially direct attention to (1) the emoter and (2) the referent.

Emoter-centric focus. Specific emotional contexts are likely to draw one's attention to the individual expressing the emotion (i.e., the emoter) so as to coordinate an adaptive response in response to that individual. Two emotions for which this may be the case are anger and sadness. For example, infants who witness an anger reaction of one adult towards another adult's actions are less likely to repeat the action in the presence of the angry individual, but do not necessarily avoid the object associated with the anger (Repacholi, Metlzoff, & Olsen, 2008). Similarly, observing an individual expressing sadness often elicits infant prosocial behavior (e.g., hugging the experimenter, giving her a toy) toward the emoter (e.g., Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013; Spinrad & Stifter, 2006; Svetlova, Nichols, & Brownell, 2010; Zahn-Waxler et al., 1992), not the source of the distress (e.g., the clipboard; the torn drawing). Each of the above behaviors necessitate that the infant to allocate attention and efforts on the distressed individual, not necessarily the object related to the emotion (e.g., the anger-eliciting action or sadness-inducing broken toy). Such emoter-centric responses suggest that individuals may allocate more attention to the emoter in both anger and sadness emotional contexts.

Referent-centric focus. Conversely, other emotional contexts may direct one's attention and response to the referent of the emotion. Research on responses to disgust and fear contexts provide evidence that individuals are more likely to focus attention on the disgusting or fearful referent than the person displaying the emotion. Disgust motivates individuals to avoid illness and disease-causing substances (see Oaten, Stevenson, & Case, 2009) and such avoidant behavior in response to disgust stimuli is seen in toddlers (Stevenson, Oaten, Case, Repacholi, & Wagland, 2010). In fear contexts, Walden and Ogan (1988) reported that 14- to 22-month-old infants explored a toy significantly less when it was accompanied by a fear expression, and work on the visual cliff demonstrates that infants appreciate the target of a caregiver's fear (i.e., the drop-off) and modify their behavior accordingly (e.g., Sorce, Emde, Campos, & Klinnert, 1985). Thus, disgust and fear contexts are likely to increase one's attention toward the disgust- or fear-eliciting stimulus than disgusted or fearful individual.

What about joy? Research is somewhat unclear with regard to attentional allocation in joy contexts. The social referencing literature highlights the influence of joy on infants' proximity to and exploratory behavior of objects labeled with positive affect (Carver & Vaccaro, 2007; Hertenstein & Campos, 2004; Hornik, Risenhoover, & Gunnar, 1987). Additionally, infants have been found to reference an experimenter less when she communicated positive affect in comparison with negative affect towards a toy (Moses, Baldwin, Rosicky, & Tidball, 2001). However, research also indicates that infants prefer to look at individuals expressing a positive emotion over those expressing a negative emotion (Grossmann, Striano, & Friederici, 2007) and individuals are more likely to affiliate with people who are perceived as happy (for a

review, see Lyubomirsky, King, & Diener, 2005). Thus, it is unclear how individuals may differentially direct attention in joy contexts.

Current Study

The above review provides a foundation for understanding how discrete emotions may differentially direct our attention and responding. However, research on parent-child emotion conversations has only focused on valence (i.e. negative vs. positive), ignoring the qualitative differences of discrete emotions. The present study investigated how individuals differentially reference aspects of emotional contexts. Specifically, parent communication about 5 discrete emotion contexts was observed in a picture book task. We hypothesized that communicative behaviors toward particular aspects of the context (e.g., the emoter and referent) would vary across discrete emotions. Specifically, we predicted that parent communication would focus on the emoter more in anger and sadness contexts than in fear and disgust contexts, whereas greater attention to the referent was predicted in fear and disgust contexts compared to anger and sadness contexts; no *a priori* predictions were made for joy. Additionally, differences in the amount of parent words and questions across each emotional context were explored. We predicted that parents would talk more and ask more questions in negative emotional contexts than positive emotional contexts.

Method

Participants

Thirty-nine infant-parent dyads (37 mothers) completed the study. Infants were divided into 2 age groups: 18-month-olds ($n = 20$, 11 female; $M_{age} = 18.69$, $SD = 0.62$) and 24-month-olds ($n = 19$, 10 female; $M_{age} = 23.88$, $SD = 1.38$). An additional 9 dyads took part in the study but were excluded due to technical malfunction ($n = 1$) or infant fussiness ($n = 8$). Of the participants who completed the book, there were a number of participants who did not complete all of the pages (i.e., trials), thus the subsequent analyses account for this missing data.

Participants were recruited from the California San Joaquin Valley. The majority of families had an income between \$25,000 and \$40,000 (range: less than \$25,000 to \$120,000). Infant reported ethnicity was 67% Latino and 33% Non-Latino. Dyads spoke in either English ($n = 27$) or Spanish ($n = 12$), whichever language the parent was most comfortable speaking.

Materials

Stimuli. The word-less picture book was comprised of a set of ten 8" x 10" photographs. Each image depicted an emotional scene featuring a single emoter (i.e., a male or female child) posturally and facially displaying one of five discrete emotions (i.e., fear, sadness, joy, disgust, anger), and a clear referent related to the emotion (e.g., a piece of broccoli, a spider, a puppy). Facial and postural displays of emotion were consistent with previous research on emotional expressions (Ekman, Friesen, & Ellsworth, 1972). All emotion images were of normal, everyday intensity – no gruesome (e.g., amputation images) or obscene (e.g., fecal matter, racial prejudice) images were included. Images were collected from the Internet by a trained researcher. Sample images from the picture book are provided in Figure 1.

Stimuli validation. A separate sample of 77 adult participants (37 female; $M_{age} = 19.97$, $SD = 1.66$) validated each of the picture book images. Raters viewed the complete image and identified the emotion expressed by the child in each image from a list of 6 emotions (anger, sadness, disgust, fear, joy, and surprise) and an open-ended "other" option. Answers to the other option that fit within an emotion family (e.g., happy, frustrated, scared, afraid) were collapsed into the aforementioned emotion categories; otherwise they were retained as "other" and counted as disagreement. Percentage agreement (i.e., identifying the intended emotion for the image) and Fleiss' kappa values were used as convergent means for validating emotional stimuli (e.g., de Gelder & Van den Stock, 2011). The overall agreement for the target emotion (i.e., the intended emotion of the image) was 91% (Anger = 84%, $k = 0.89$; Sadness = 98%, $k = 0.97$; Disgust = 97%, $k = 0.96$; Fear = 80%, $k = 0.86$; Joy = 94%, $k = 0.96$).

Procedure

Each dyad participated in a single lab visit lasting approximately 15 – 30 minutes. Upon arrival, a trained researcher provided an overview of the procedures to the parent. After all questions were answered, parents were asked to complete consent documents and a demographic questionnaire. While the parent completed these forms, the child engaged in a short warm-up period during which s/he played with toys in the room with a second researcher.

Picture book activity. The parent was asked to describe the picture book to their child. The 10 images were randomly ordered with the exception that the same two emotions were never displayed in succession. The child was seated on the parent's lap or next to the parent on a couch. Parents were instructed to describe each image to their child as if it were a separate story and progress through the book at their own pace. The picture book activity lasted an average of 3.80 minutes ($SD = 1.35$). A video camcorder on a tripod recorded all verbal and nonverbal behaviors.

Coding

Parent talk. Trained researchers transcribed verbatim all English and Spanish verbalizations by the parent during the picture book activity. The on-task words (i.e., words pertaining to each emotional context) in each transcript were counted via Microsoft Word to create the *Parent Words* (reliability: $r = .95$, $M_{diff} = 0.68$) for each page. Talk related to external activities (e.g., the parent promising the child a trip to the store after the book), attempts to obtain the child's attention or full participation, and child's fussiness were excluded from the total amount of parent words.

Undergraduate researchers naïve to the hypotheses of the study subsequently coded each transcript for parent talk that contained the following:

Emoter. The emoter in each image was classified as the individual displaying the emotion (reliability: $r = .83$, $M_{diff} = 0.24$). Words indicating the emoter included but were not limited to: *he, she, they, him, her, boy, and girl*.

Referent. The object or situation toward which the emotion was directed was considered the referent of the emotional display (reliability: $r = .81$, $M_{diff} = 0.07$). Words indicating the referent included but were not limited to: *green juice, broccoli, dog, puppy, ice cream, spider, and homework*.

Emotion label. Labeling the target emotion, or related emotion terms, was considered an emotion label (reliability: $r = .81$, $M_{diff} = 0.10$). Words indicating the target emotion for sadness (e.g., depressed, down, blue), angry (e.g., mad, frustrated), joy (e.g., happy, joyful), fear (e.g., afraid, scared, frightened), and disgust (e.g., gross, yucky, icky) were coded as labeling the emotion.

Parent questions. Parent questions about the images in the picture book were coded for each page ($r = .97$, $M_{diff} = 0.19$). Questions that were rhetorical (e.g., she is mad, huh?) or unrelated to the page (e.g., you want your snack?) were excluded from the parent question coding. Questions that were included were ones that referenced the picture book (e.g., is he sad or happy that his ice cream fell?).

Results

Analytic Strategy

Parent communication was analyzed separately for each of the above variables using mixed linear models with a compound symmetry covariance structure. The analysis of Parent Words included Picture Emotion and Infant Gender as main effects, as well as Trial Number to control for fatigue. Analyses of specific word/verbalization types (i.e., Emoter, Referent, Emotion Labels, Parent Questions) included main effects of Picture Emotion and Gender, as well as Parent Words and Trial Number to control for parent verbosity and fatigue, respectively. Additionally, analyses examining parent mentioning of the emoter or referent included the size of the respective element in the image to control for differences across images in the size of the specific element (i.e., size of the emoter or the referent¹).

Preliminary analyses examined effects of the language spoken, infant age, and family income on each dependent variable. These predictors were not significantly related to the variables of interest and were thus excluded from subsequent analyses.

The main effects for the variables of interest, specifically the multilevel nominal predictor Picture Emotion and the binary predictor Gender, are presented below as standardized effect sizes (η^2). Subsequent pairwise comparisons of discrete emotions (see Table 1) included a Bonferonni correction, with adjusted *p*-values reported below.

Parent Words

The analysis of Parent Words revealed a significant main effect of Picture Emotion, $F(4, 335) = 3.47, p = .020, \eta^2 = 0.034$. However, Parent words did not differ by Infant Gender, $F(1, 36) = 0.003, p = .956, \eta^2 > 0.00, b = 0.25, SE = 4.52$.

Subsequent pairwise comparisons examined differences in Parent Words between discrete emotional contexts. Parents used significantly fewer words in describing Joy images than images depicting Sadness, $t(335) = 3.11, p = .02, d = 0.38$.

Emoter

Analysis of parent mentioning the Emoter revealed a significant main effect of Picture Emotion, $F(4, 334) = 29.90, p < .001, \eta^2 = 0.26$, but not Infant Gender, $F(1, 35) = 2.13, p = .15, \eta^2 = 0.06, b = 0.44, SE = 0.30$.

Subsequent pairwise comparisons were conducted to examine differences in mentioning the Emoter across discrete emotions. Parents referred to the emoter significantly more often for Anger images than images depicting Disgust, $t(333) = 6.17, p < .001, d = 1.17$, Fear, $t(335) = 9.30, p < .001, d = 1.87$, and Joy, $t(332) = 3.92, p < .001, d = 0.88$. Additionally, parents referred to the emoter significantly more often for Sadness contexts than contexts of Disgust, $t(333) = 4.85, p < .001, d = 0.70$, Fear, $t(332) = 8.56, p < .001, d = 0.78$, and Joy, $t(336) = 4.37, p < .001, d = 1.37$. Parents also referred to the emoter significantly more often for Disgust than Fear, $t(333) = 3.60, p = .004, d = 0.71$, and for Joy than Fear, $t(333) = 4.15, p < .001, d = 0.79$.

Referent

Analyses examining differences in parent mentioning of the referent revealed significant main effects of Picture Emotion, $F(4, 337) = 21.67, p < .001, \eta^2 = 0.20$. No significant effects were present for Infant Gender, $F(1, 37) = 0.74, p = .40, \eta^2 = 0.02, b = 0.15, SE = 0.18$.

Pairwise comparisons examined differences in parent mentioning of the referent between discrete emotions. Parents talked about the referent significantly more often for Disgust images

¹ The size of the respective element was calculated by measuring the area (i.e., height x width) of the item.

than Anger, $t(336) = 5.01, p < .001, d = 1.16$, and Sadness images, $t(336) = 4.23, p < .001, d = 0.79$. Additionally, parents talked about the referent significantly more often for Fear images than Anger, $t(336) = 7.74, p < .001, d = 1.68$, and Sadness, $t(336) = 4.92, p < .001, d = 1.23$. Parents talked about the referent significantly more in Joy images than in Anger, $t(336) = 7.07, p < .001, d = 1.51$, and Sadness, $t(342) = 4.21, p < .001, d = 1.14$.

Emotion labels

Examination of parent use of emotion labels revealed a significant main effect of Picture Emotion, $F(4, 335) = 3.45, p = .01, \eta^2 = 0.04$, but no significant effect of Infant Gender, $F(1, 36) = 2.79, p = .10, \eta^2 = 0.07, b = 0.42, SE = 0.25$.

Pairwise comparisons indicated that parents labeled the emotion significantly more often for Anger images than Joy images, $t(334) = 3.32, p = .006, d = 0.63$, and for Disgust images more often than Joy images, $t(336) = 2.83, p = .05, d = 0.50$.

Parent Questions

Finally, the total number of parent questions was analyzed. The main effect of Picture Emotion was not significant, $F(4, 327) = 1.63, \eta^2 = 0.02, p = .17$. However, a significant main effect of Infant Gender was present, $F(1, 36) = 7.59, p = .009, \eta^2 = 0.17, b = 0.95, SE = 0.34$, with parents asking more questions to girls ($M = 2.48, SD = 2.49$) than to boys ($M = 1.48, SD = 1.64$).

Further analyses examined whether this gender difference in parent questions was present across emotion contexts. Pairwise comparisons revealed that parents asked significantly more questions to female infants than male infants for Anger, $t(104) = 2.20, p = .03, d = 0.50$, Sadness, $t(104) = 2.08, p = .04, d = 0.47$, and Disgust, $t(103) = 3.66, p < .001, d = 0.55$, images. However, no significant gender differences were found for Fear, $t(106) = 0.96, p = .336, d = 0.22$, and Joy, $t(105) = 1.46, p = .15, d = 0.33$.

Discussion

Picture book reading provides an experience through which children may learn where to attend within discrete emotional contexts through parent communication. This study indicates that parents differentially direct attention to aspects of emotional contexts as a function of the discrete emotion. These findings extend previous research by examining parent-child emotion conversations by discrete emotions, rather than only by valence. Below we highlight the present findings, place them in context with previous research on emotional development, and consider additional lines for empirical inquiry.

Parent Talk About Emotional Contexts

Parents verbally referenced the emoter significantly more in anger and sadness contexts than in joy, disgust, and fear contexts. Conversely, parents talked about the referent more in disgust and fear contexts than in joy, anger, and sadness contexts. Parent emotion labeling also differed across emotions, but only by valence, with joy being labeled significantly less than the negative emotion contexts (i.e., anger, sadness, disgust, and fear). Interestingly, no age differences were present for any of the variables, which is in line with Lagattuta and Wellman's (2002) findings that there were no age differences between the 2- to 5-year-old children in the quality and emphasis on negative emotions.

Analyses of total parent words and questions used in the picture book revealed interesting differences across emotional contexts. Parents talked significantly more about sadness than any other emotion, and also talked more about disgust, and fear contexts than joy contexts. The findings are in contrast to the lack of valence-based differences in amount of parent talk reported by Lagattuta and Wellman (2002). However, parents asked significantly more questions in joy contexts than in any other context. These results are in contrast to Lagattuta and Wellman's (2002) finding that negative emotion conversations had a significantly higher rate of parent questions than positive emotion conversations. This discrepancy may be due to differences in ages tested or methodology between the studies.

Additionally, parents asked more questions to female infants than male infants, particularly for anger, sadness, and disgust contexts. Research examining gender differences in emotion conversation reveal that parents of daughters seem to initiate conversations about emotions more than parents of sons (Dunn, Bretheron, & Munn, 1987). Parents talk more about sadness and use more interpersonal narratives of emotional contexts with daughters than with sons (Fivush, Brotman, Buckner, & Goodman, 2000). However, when parents are reminiscing about past events, they talk more about anger with their sons than with daughters (Fivush, 1989). Indeed some research finds no age differences in conversations about emotions (Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991; Fivush & Wang, 2005), though this may be due the types of conversations and contexts in which the conversations occur (Fivush, 2007).

The above differences in conversations about discrete emotions may influence how children understand emotions. Conversations about emotions are important in the development of emotion understanding (Thompson, 2006). Infant's exposure to talk about emotions has been shown to relate to their emotional understanding (Garner, Jones, Gaddy, & Rennie, 1997) and socioemotional development (Laible & Song, 2006). Increased infant emotional understanding through talk about emotions or the infant's own experience, may influence their responses to others' emotions, such as prosocial behaviors in response to sadness (e.g., Newton, Goodman, & Thompson, 2014). For example, an increased focus on the emoter within parent conversations about sadness may influence infant's attentional allocation in sad contexts and lead them to respond prosocially to the sad individual.

Limitations and Future Directions

The above findings suggest a number of important considerations and directions for future research to consider. First, although this study used carefully selected images with strict criteria for inclusion, further standardization of images would be desirable. The present images varied slightly with regard to the size of referent, distance between emoter and referent, and background information, as well as the level of concreteness of the referent (e.g., a sad girl on a phone may provide a less concrete referent than a boy disgusted by a green drink). The use of more standardized images (e.g., full bodied emoters, referents of equal saliency, white backgrounds) would help to address this issue. Although greater standardization of the images is possible, the level of image standardization in the present study was likely comparable to, if not more stringent than, images commonly used to measure parent-child emotion conversations, which typically involve existing picture books (e.g., Drummond, Paul, Wough, Hammond, Brownell, 2014).

Second, additional paradigms are needed to assess attentional allocation to emotion contexts. One avenue of future research would be to examine whether specific aspects of emotional contexts are remembered better than others (e.g., remembering the fearful stimulus over the fearful person; remembering the angry person over the source of anger). Additionally, closer examination of infant behavioral responding to specific aspects of discrete emotional contexts could further instantiate how differential attentional allocation is utilized to coordinate an adaptive response. Although research reviewed in the introduction hints at such variability of responding in discrete emotion contexts (e.g., Hertenstein & Campos, 2004; Hornik, Risenhoover, & Gunnar, 1987; Repacholi, Meltzoff, & Olsen, 2008; Stevenson, Oaten, Case, Repacholi, & Wagland, 2010; Svetlova, Nichols, & Brownell, 2010; Walden & Ogan, 1998), additional research comparing multiple discrete emotions is needed (see Walle & Campos, 2012).

Third, research is needed to investigate the ontogeny of differential attention to aspects of emotional contexts. Previous research indicates that infants attend to different areas of the face as a function of discrete emotions (Amso, Fitzgerald, Davidow, Gilhooly, & Tottenham, 2010; Hunnius, de Wit, Vrins, & von Hofsten, 2011). Measuring infants' eye gaze could help examine how infants' differential attention to emotional contexts develops in accordance with caregiver socialization of emotional attention. Furthermore, the use of eye tracking would allow greater flexibility in the ages that could be tested and possibly tease apart socialization and evolutionary accounts for observed differences in attentional allocation. For example, differential infant looking to aspects of the emotional contexts prior to when socialization effects would be expected could suggest an evolutionary basis for such differences in attention.

Finally, there are likely to be differences in parent directing of child attention to specific aspects of emotional contexts as a function of the cultural and the family context. Culture influences how emotions are experienced and perceived (e.g., Markus & Kitayama, 1991; Matsumoto, 1993), and may affect how individuals attend to elements in emotional contexts (e.g., Masuda et al., 2008) and the socialization practices that direct infant attention (e.g., Friedlmeier, Corapci, & Cole, 2011; Wang & Fivush, 2005). Not only could differences exist in the quantity of emoter or referent labels for discrete emotions, but also in the quality of such verbalizations, such as referencing aspects in isolation or in relation with one another (e.g., Masuda & Nisbett, 2001; Wang & Fivush, 2005). Furthermore, parent expressivity and engagement (e.g., Cohn, Matias, Tronick, Connell, & Lyons-Ruth, 1986; Goodman & Gotlib, 1999; Murray, 1992) and the emotional ecology of the family (e.g., Leitzke & Pollak, 2016;

Pollak, Messner, Kistler, & Cohn, 2009) could impact individuals' differential attention to aspects of emotional contexts. Research on these aspects would further delineate the development and manifestation of attentional allocation to emotional contexts.

How parents communicate about emotions likely influences a child's social and emotional development. The aspects of emotional contexts that parent's reference in their conversations about emotions has important implications for the infants understanding of emotions and appropriate responding to others' emotions. Such understanding and responding may impact other aspects of emotional development such as intra- and interpersonal emotion regulation and social competence.

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Table 1. Means and Standard Deviations for Target Variables Across Discrete Emotions

Variable	Anger	Sadness	Disgust	Fear	Joy
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Total Words	30.32 (17.09)	33.97 _{J*} (16.94)	32.52 (19.67)	32.71 (19.80)	27.97 _{S*} (14.42)
Emoter	5.14 _{D** F** J**} (3.11)	5.36 _{D** F** J**} (2.98)	3.64 _{A** S** F*} (2.36)	2.92 _{S** A** J** D*} (2.30)	3.56 _{A** F**} (2.43)
Referent	1.49 (1.27)	2.59 (2.08)	3.47 _{A** S**} (2.72)	3.64 _{A** S**} (2.63)	3.08 _{A** S**} (1.89)
Emotion Labels	1.82 _{J**} (1.61)	1.66 (1.26)	1.71 _{J†} (2.01)	1.55 (1.32)	1.03 _{A** D†} (0.97)
Parent Questions					
Male Infants	1.40 _{Fe*} (1.61)	1.39 _{Fe*} (1.96)	1.24 _{Fe**} (1.26)	1.65 (1.87)	1.76 (1.46)
Female Infants	2.28 _{Ma*} (2.27)	2.46 _{Ma*} (2.25)	2.95 _{Ma**} (3.17)	2.26 (2.41)	2.44 (2.27)

Note: Observed means and standard deviations in parentheses. Letters next to each mean (S = sadness, F = fear, A = anger, D = disgust, J = joy) designate which pairwise comparisons were marginally ($\dagger = p < .055$) or significantly different ($* = p < .05$, $** = p < .01$). For example, parents labeled the emotion significantly more in Anger contexts than in Joy contexts. For Parent Questions, differences in the vertical subscripts next to each mean (Ma = male infants, Fe = female infants) designate which pairwise comparisons were significantly different by gender ($* = p < .05$, $** = p < .01$). For example, parents asked significantly more questions to female infants than male infants in Anger contexts.

Figure 1. Sample Images from Picture Book



Note: Sample images from the picture book activity (from upper left: Anger, Disgust, Joy, Fear). All images were presented in random order, with exception that the same emotion was not repeated sequentially.