Maternal Emotion-related Socialization and Preschoolers’ Developing Emotion Self-awareness

Heather K. Warren and Cynthia A. Stifter, The Pennsylvania State University

Abstract

Preschoolers’ ability to demonstrate awareness of their own emotion is an important socio-emotional competence which has received increasing attention in the developmental literature. The present study examined emotion self-awareness of happiness, sadness, and anger in response to a delay of gratification task in 78 preschool children. Maternal emotion-related socialization behaviors (ERSBs) including reported emotional expressivity, responses to her child’s emotions, and observed emotion talk, were examined as predictors of children’s emotion self-awareness skill one year later. Results show that, after controlling for receptive language ability, supportive ERSBs were predictive of high self-awareness of happiness whereas non-supportive ERSBs were predictive of low self-awareness of sadness. The results demonstrate that the concordance between observed and self-reported emotion serves as a useful index of children’s awareness of their emotional experience.

Keywords: emotion socialization; emotion self-awareness; preschool; social-emotional development

Introduction

Although extant research in the preschool years has consistently supported the link between emotion-related skill and social development (see Denham, 1998, for a review), recent advances in developmental theories have further unpacked these components. By emphasizing the affective components of social competence, these models delineate several complex emotional skills that are rapidly maturing in preschoolers (Halberstadt, Denham, & Dunsmore, 2001; Saarni, 1999). The present study examines preschoolers’ emotion self-awareness. Although the awareness of one’s own emotion is recognized as central for social competence, little is known about the processes contributing to it.

Emotion Self-Awareness

Developmentalists have acknowledged that emotional competence encompasses the ability to be aware of one’s own emotions (Gottman, Katz, & Hooven, 1997; Hubbard &
Coie, 1994; Thompson, 1994) and that such awareness is related to, but distinct from, emotion regulation (Saarni, 1999). Emotion self-awareness has been linked to important outcomes in later childhood and adulthood. Gottman et al. (1997) found that adults' ability to recognize and be aware of their own emotion influenced the emotion-related content of their social exchanges with their child, and ultimately, their child's ability to regulate his or her emotions. Parents influenced their child's social-emotional development via their own self-awareness of emotion. Conversely, poor emotion self-awareness has been associated with the development or maintenance of psychopathology. Sim and Zeman (2004) reported that adolescent girls with bulimia nervosa had inferior perceived ability to identify and retrieve information about their emotional states.

Although these findings recognize the significance of emotion self-awareness in later development, what do we know about younger children? By preschool, we know that children are capable of experiencing, identifying, and coping with a wide repertoire of emotions (Saarni, 1999). Measuring preschoolers' emotion self-awareness in light of their advancing (but not yet fully developed) abilities therefore becomes a challenge. Studies examining young children's acquisition of emotion self-awareness confront the limits of the child's ability to communicate their own emotional experience (Carroll & Steward, 1984; Harris, 1989; Izard, 1977; Masters & Carlson, 1984).

A review of the literature suggests that contextually valid studies are needed to delineate the developmental progression of children's awareness of their own emotion. As others have noted (Casey, 1993; Harris, 1989; Hubbard & Coie, 1994; Terwogt & Olthof, 1989), investigations related to emotion self-awareness in young populations have assessed children's understanding of emotion, but have rarely examined children's own emotional experience. Methods used to examine children's own experiences have often relied upon memory for past events, as assessed via structured (Strayer & Roberts, 1997), semi-structured (Casey, 1993) or open-ended (Harris, 1989) interviews. Although these interviews do address children's actual emotional experiences, retrospective accounts confound self-awareness with preschoolers' memory of and ability to verbally communicate a past event. To date, few studies have placed young children within the emotionally-charged event, asked them to report on their experience, and related this to their expressive behavior as an index of awareness (Olthof & Engelberts-Vaske, 1997).

Lastly, although developmental theory (Halberstadt, Cassidy, Stifter, Parke, & Fox 1995) and practice (Domitrovich, Greenberg, Kusché, & Cortes, 2004) recognize the preschooler's internal experience of emotion, there is little understanding of the processes or precursors that contribute to emotional self-awareness. To address this issue, the current study examined the influence of parental emotion-related socialization behaviors (ERSBs) on the progression of young children's emotion self-awareness.

The 'Dialogue' of Emotion Socialization

The significant contributions of familial socialization processes on children's emotional development have long been recognized in the empirical literature (Denham, 1998; Denham & Grout, 1992; Dunn, Brown, & Beardsall, 1991; Gottman et al., 1997; Halberstadt & Eaton, 2003; Roberts & Strayer, 1987; Saarni, 1999) and, more recently, synthesized into a heuristic model of ERSBs (Eisenberg, Cumberland, & Spinrad, 1998). Given this theoretical and empirical foundation, the current study examined three central maternal ERSBs (expressivity, discourse about emotion, and reactions to
the child’s expression of negative emotions) that were hypothesized as important for preschoolers’ developing internal awareness of emotion.

By preschool, a child’s emotional competence is associated in complex ways with emotional experiences at home. First, through her expressive style, a mother teaches her child about the intricacies of emotions. Children of mothers who express happiness more frequently find a better emotional balance with their classroom peers and are more emotionally positive (Denham & Grout, 1992), whereas maternal displays of strong and frequent anger coincide with stronger and more frequent displays of anger expressiveness at preschool (Denham, 1989). Engaging in emotional situations also augments children’s understanding of emotion. Preschoolers with mothers who more clearly express their emotions are better at understanding and decoding the emotions of their own mothers, as well as other adults (Daly, Abramovitch, & Pliner, 1980). Taken together, these studies are evidence of the clear impact of mothers’ expressivity on children’s emotion competence.

As children develop the ability to communicate through spoken language, non-verbal modeling processes are complimented by verbal exchanges. Children who engage in more conversations about their feelings with mothers also develop more extensive verbal communication about emotions over time and become better at identifying emotions, independent of general verbal ability (Dunn, Bretherton, & Munn, 1987). The skill of emotion language affords children greater flexibility when interacting with their social environment, enabling them to comment on their own experience, influence others’ behavior, and respond with greater empathy to other preschoolers’ distress (Miller, Eisenberg, Fabes, & Shell, 1989). Mothers can use these dialogues to teach the child ways to handle emotional situations (i.e., make suggestions, offer an intervention, direct the child’s behavior) (Cervantes & Callahan, 1998; Dunn et al., 1987).

Lastly, parents’ reactions to their child’s emotional behavior are also considered a central mechanism of socialization (Cummings & Davies, 1996; Fabes, Leonard, Kupanoff, & Martin, 2001) distinctive from generalized parenting practices such as parental warmth (Roberts & Strayer, 1987). Parents demonstrate marked variability in their responses to their child’s emotion which are often based on social norms they value regarding the appropriateness of negative emotional displays, and qualities they believe reflect strong character (Roberts & Strayer, 1987). Parents’ undermining coping responses, including distress reactions and negative control strategies to stop the child’s expressions of negative emotion via minimization or punishment, are strongly related to children’s impaired emotional competence (Denham & Grout, 1992; Denham, Mitchell-Copeland, & Strandberg, 1997). Conversely, parents’ use of strategies that encourage the healthy expression of emotion and provide instrumental or emotional support renders a more optimal context for socializing the child about their feelings. Children with the opportunity to process parents’ messages about emotional behavior in an accepting environment may be more likely to feel able and motivated to learn, and less likely to feel overaroused by the situation in general (Fabes et al., 2001).

**Goals of Current Study**

Our primary goal was to test models of the components of maternal emotion socialization that contribute to children’s emotion self-awareness. We utilized three factors proposed in Eisenberg et al.’s (1998) heuristic model of the socialization of emotion to construct a multi-method index of mothers’ ERSBs. Because gender is relevant to both the dependent and independent variables (e.g., Cole, 1986; Dunn et al., 1991;
Radke-Yarrow & Kochanska, 1990; Saarni, 1984; Zeman & Garber, 1996), it was also included in the determination of our models.

Despite the centrality of emotion self-awareness in understanding how emotional experience influences social behavior, assessments of young children’s ability to be emotionally self-aware present issues of both internal and external validity. We aimed to create a contextually valid experimental design eliciting negative emotion and to examine the child’s emotional self-awareness during a standardized delay of gratification. We incorporated a non-verbal self-report of emotion collected during the emotion-eliciting situation to assess the accuracy of children’s emotion self-awareness in vivo. Toward this end, we adopted Strayer and Roberts’ (1997) definition of emotion self-awareness as the concordance between observed and self-reported emotion: We expected facial and verbal measures of emotion to provide coherent information assessing the same process, whereby divergence should reflect lawful, orderly transformations such as context, gender, and socialization processes. Our personally relevant situation, void of third-person perspective-taking, afforded us a developmentally appropriate assessment of the ability to assess one’s own emotional experience.

In summary, based on the previous literature assessing the significant contribution of maternal emotion socialization processes on children’s emotion competence, we expected mothers’ supportive socialization of their preschoolers’ emotion would predict children’s greater self-awareness of emotion one year later in a negative emotion-eliciting situation. Conversely, mothers’ non-supportive socialization of their preschoolers’ emotion was expected to predict lower self-awareness of emotion one year later.

Method

Participants

Children were drawn from two samples of full-term, healthy infants recruited from Pennsylvania community hospitals for a broader longitudinal project examining emotion regulation and its relation to early behavior problems. Each measurement occasion consisted of separate laboratory visits with each parent. A laboratory visit included completion of parent-report measures, various interactive tasks for parent and child to complete together, and laboratory-based tasks for the child. All assessments were videotaped for later behavioral coding. Ninety-two of these children (43 girls, 49 boys) participated in the 4.5-year laboratory observation with their mothers. The final sample consisted of 78 mother–child dyads (38 girls; 40 boys; $M = 55.30$ months, $SD = 1.00$ months). Participant families were representative of the area: English-speaking, predominately White (97 percent), and middle- to upper-middle-class. Mothers were, on average, 35 years old ($SD = 4.51$), and had completed an average of 16 years of education ($SD = 2.41$).

Materials and Procedure

Peabody Picture Vocabulary Test-Revised (PPVT-R) (Dunn & Dunn, 1981). Children’s PPVT-R scores were standardized to index children’s receptive language skill at 4.5 years. The average receptive vocabulary score for the present sample was 111.4 ($SD = 12.44$), with a range from 70.0 to 139.0. Internal reliability of the measure was high ($\alpha = .90$). Split-half reliability ranged from correlations of .86 to .93.
Self-expressiveness in the Family Questionnaire (SEFQ) (Halberstadt et al., 1995). The SEFQ assessed mothers’ typical expressive modeling of emotion. During the 4.5-year visit, mothers rated the frequency with which they express themselves emotionally via 40 hypothetical situations with family members on a nine-point Likert scale. As in Halberstadt et al. (1995), the dominant and submissive subscales were combined to create a positive expressiveness and a negative expressiveness subscale. Halberstadt (1995) reported mean Cronbach’s alphas of .92 and .86 for the positive and negative subscales, respectively. Corresponding alphas for this sample were .89 for both subscales.

Coping with Children’s Negative Emotions Scale (CCNES) (Fabes, Poulin, & Eisenberg, 2002). The CCNES was administered to mothers during the 4.5-year visit to assess coping responses as a result of the child’s expression of negative emotion. For each scenario, mothers used a seven-point Likert scale to rate the likelihood of responding in each of six possible ways when exposed to their young child’s negative emotion. Six theoretically distinct CCNES subscales captured maternal reactions to negative emotion: problem-focused, emotion-focused, expressive encouragement, minimization, punitive, and distress. Good psychometric properties have been reported for this scale, with alpha coefficients for each of the subscales ranging from .71 to .87 (Fabes et al., 2002). Corresponding alphas for this sample ranged from .80 to .86.

Emotion Discourse Following Disappointment. In this study, a one-minute period of mother–child interaction during Cole’s disappointment paradigm (Cole, 1986; Cole, Zahn-Waxler, & Smith, 1994) was utilized as an in vivo opportunity to observe mothers’ use of emotion talk. As in Cole’s procedure, children were asked to rank six small prizes in order of preference. Later in the visit, the experimenter told the child that she would receive a prize as a reward for the child’s hard work (completion of the PPVT-R). The experimenter returned, alone, and presented the child with a wrapped gift that was always the child’s least favorite prize. The child unwrapped the toy in the presence of the experimenter and then a confederate entered to ask the child about how she or he felt about that prize. After the interview, the confederate left, and the mother re-entered the room, giving her the opportunity to talk with her child for up to 1 minute. Then the experimenter returned to the room, apologized for the prize mix-up, and allowed the child to trade in his or her prize for a more preferable one.

All mother–child utterances during the one-minute interaction were transcribed. Mother turns that (1) were preceded by verbalization of feelings by the child; (2) referred to the child’s affect directly or indirectly; or (3) referred to or labeled her own or others’ emotions, were identified. Independent coders marked the function of maternal utterances in the mother–child exchange based on an adaptation of Dunn et al. (1987), and Spinrad, Stifter, and Donelan-McCall (2002). Independent coders trained to very high agreement across all categories ($\kappa = .90$), and disagreements were resolved by discussion and consensus. To ensure consistency in coding over time, 20 percent of all transcripts were independently scored, and coders maintained very strong agreement over time ($\kappa = .95$).

Child Emotion Self-awareness in Response to a Standardized Delay (Mischel & Mischel, 1983). To measure their self-awareness of emotion, children’s responses to an emotion-eliciting task (delay of gratification) were examined for concordance between their self-reported and observed emotion. The delay procedure was a
modification of Mischel’s standardized delay paradigm, whereby children were forced to wait a standard length of time for a desired outcome. In this study, the desired outcome was the opportunity to determine the quality and type of prize the child would receive at the completion of the laboratory visit tasks. Throughout the 5.5-year visits, participants were given numerous opportunities to earn ‘tickets’ and were informed of the opportunity to trade tickets in for small prizes at the conclusion of all of the tasks. All prizes and their associated ticket ‘cost’ were on display during the entire visit (including the 10-minute delay). The quality and number of prizes each child received was determined by the total number of tickets earned throughout the visit, with larger amounts of tickets resulting in a more attractive prize.

Self-reported emotion. Near the end of the child’s 5.5-year visit with the mother, an experimenter trained the child to report on how they are feeling ‘right now’ using a computer-based forced choice scale. The non-verbal self-report of emotion assessment was designed for use with young children. Children self-reported their emotions using a series of paired comparisons between faces. Three subscales, consisting of five increasingly happy, sad, or angry faces, with order of presentation counterbalanced, were used to assess the intensity of each emotion on a four-point scale. Children were trained on the use of the scale and allowed to practice using the faces. Once the training trial was completed, the experimenter announced it was time for the child to count and redeem their tickets and pick out a prize; however, before the child was finished counting their tickets, the experimenter was called out of the room, thus creating a ‘delay’. After 10 minutes, a confederate entered the room stating she did not know what was holding up the experimenter. The confederate administered the scale the child had been trained to use previously by explaining, ‘I want to know how you are feeling right now, after all of that waiting. Which one of these faces do you feel like right now?’ The child’s responses to the non-verbal scale following the delay (posttest) were scored from 0 (‘neutral’) to 3 (‘high’) for each emotion questioned (happy, sad, and mad).

Observed emotion. Observed global facial expression of emotion was coded from videotape using a standard measurement of observed facial expression based loosely on the facial action coding system/emotion facial action coding system (FACS/EMFACS; Ekman & Freisen, 1980) and a system for identifying affect expressions (AFFEX; Izard, Dougherty, & Hembree, 1983) systems. Observed emotion was continuously coded on a second-by-second basis. Coders were trained to recognize the following emotions: happy, sad, mad, fear, and neutral. For training purposes, the three intensity levels of emotion (mild, moderate, and high) were also coded. Disagreements were resolved by discussion and consensus. Twenty-one percent of all participants were then independently coded to ensure consistency in coding over time, and to prevent coder drift. Coders first trained to $\kappa(\text{avg}) = .76$ and then maintained $\kappa(\text{avg}) = .84$ over time. Fear was not observed for any of the participants, and was therefore dropped.

Data Reduction

Maternal Expressivity. The positive expressiveness and negative expressiveness subscales of the SEFQ were internally reliable and relatively independent ($r = .14$) in this sample, and were kept as separate measures of maternal expressivity.
Emotion Discourse Following a Disappointment Task. Based on face validity, the functional categories of emotion talk were collapsed to create a composite emotion talk variable:

(1) Emotion talk: Proportion of utterances in which mother comments on, asks about, or explains about emotion or attempts to deal with the child’s emotion by distracting, suggesting a behavioral response, soothing the child, or asking the child to regulate the emotion;

(2) Other talk: Proportion of utterances in which mother does not address child’s emotions in a manner that effectively might guide or teach the child about emotion, despite the opportunity to do so.

Mothers responded to an emotion-related child discourse event during the one minute interaction following disappointment an average of 19.9 utterances (SD = 5.69). On average, 3.90 (SD = 2.89) of mothers’ utterances fell in the category of ‘emotion talk’, whereas 7.86 (SD = 4.08) of mothers’ utterances were spent engaging in ‘other talk’ by responding to the child’s utterances regarding the emotion-eliciting event without dealing with the emotion-related content of the child’s bids. These utterance counts were used to create proportion scores to provide some level of control for the total overall utterances the mother had the opportunity to make during the one-minute period. Means and standard deviations for the proportion of time spent engaging in emotion talk and other talk are presented in Table 1. Due to the nature of the measure, these proportions were negatively correlated (r = –.52, p < .0001).

Maternal Reactions to Children’s Negative Emotion. Descriptive statistics for the CCNES subscales are presented in Table 1. Exploratory factor analyses conducted on the six subscales examined underlying constructs using multiple methods of extraction and rotation. Three criteria were used to determine the number of factors: (1) the a priori hypothesis that the measure was two-dimensional; (2) the scree test; and (3) the

<p>| Table 1. Descriptive Statistics for Maternal Socialization Variables |
|---------------------------------|----------------|----------------|</p>
<table>
<thead>
<tr>
<th>Subscale</th>
<th>Mean</th>
<th>(SD)</th>
<th>Range</th>
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<tbody>
<tr>
<td>Self-expressiveness in the family questionnaire (N = 78)</td>
<td>Positive expressiveness</td>
<td>7.25</td>
<td>(.77)</td>
</tr>
<tr>
<td></td>
<td>Negative expressiveness</td>
<td>4.39</td>
<td>(1.10)</td>
</tr>
<tr>
<td>Coping with children’s negative emotions (N = 78)</td>
<td>Expressive encouragement</td>
<td>5.00</td>
<td>(1.07)</td>
</tr>
<tr>
<td></td>
<td>Emotion-focused</td>
<td>5.67</td>
<td>(.79)</td>
</tr>
<tr>
<td></td>
<td>Problem-focused</td>
<td>5.72</td>
<td>(.69)</td>
</tr>
<tr>
<td></td>
<td>Minimization</td>
<td>2.28</td>
<td>(.69)</td>
</tr>
<tr>
<td></td>
<td>Distress</td>
<td>2.83</td>
<td>(.70)</td>
</tr>
<tr>
<td></td>
<td>Punitive reactions</td>
<td>2.19</td>
<td>(.68)</td>
</tr>
<tr>
<td>Emotion discourse after disappointment (proportion of utterances) (N = 82)</td>
<td>Emotion talk</td>
<td>.20</td>
<td>(.14)</td>
</tr>
<tr>
<td></td>
<td>Other talk</td>
<td>.40</td>
<td>(.19)</td>
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interpretability of the factor solution. Examination of the associations between sub-scales suggested a two-factor structure, including one composite variable consisting of the expressive encouragement, emotion-focused, and problem-focused reactions, and a second composite variable consisting of the distress, punitive, and minimization reactions. These two composite variables were negatively associated ($r = -0.43$, $p < 0.001$). Convergence among the factor analytic methods also suggested a simple structure consisting of two correlated factors. The final solution, using principal axis factoring with an Oblimin rotation, explained 67.81 percent of the variance. An index for these factors was calculated by taking the mean of the subscales comprising each factor to create the maternal accepting reactions and maternal undermining reactions factors.

**Maternal Emotion Related Socialization Behavior Composite.** Supportive and non-supportive socialization practices were identified based on Eisenberg et al.’s (1998) theory of ERSBs. Correlations among the ERSB variables are presented in Table 2. Because variables measured on different scales would contribute unequally to the final socialization composite variable, the socialization variables were converted into $z$-scores prior to creating the final composites: (1) Supportive ERSBs: a combination of maternal positive expressiveness ($SEFQ$), maternal accepting responses to their child’s negative emotion ($CCNES$), and mother–child emotion talk following disappointment. This composite encompassed important indices of effective socialization practices as proposed by Eisenberg et al.’s (1998) theory. (2) Non-supportive ERSBs: a combination of maternal negative expressiveness ($SEFQ$), maternal undermining responses to their child’s negative emotion ($CCNES$), and the use of other types of talk that do not address the actual emotional experience (following disappointment). This composite encompassed important indices of socialization practices that represent a lack of adaptive modeling of verbal and non-verbal expressiveness of emotion.

**Emotion Self-awareness.** In the present study, the dependent variable was operationalized as the concordance between the child’s non-verbal report of emotion and their global expression of emotion for happiness, sadness, and anger. Our first approach to measuring the degree of concordance was to regress self-reported emotion onto observed emotion to produce residual gain scores as an index of the magnitude of concordance for each emotion. This method produced highly skewed distributions with

| Table 2. Interrelations among Maternal Emotion-related Socialization Behaviors |
|---------------------------------|-----|-----|-----|-----|-----|-----|
| Socialization variable          | 1   | 2   | 3   | 4   | 5   | 6   |
| 1. Positive expressiveness      | —   | .14 | .35** | −.23* | .01 | .11 |
| 2. Negative expressiveness      | —   | −.13| .27* | .09  | −.02|
| 3. Accepting responses          | —   | −.43** | .05 | −.22|
| 4. Undermining responses        | —   | .17 | .12 | —   |
| 5. Emotion talk                 | —   | −.09| —   | —   |
| 6. Other talk                   |     |     |     |     |

*Note: Number of participants ranged from 68 to 82 due to missing data.*

* $p < 0.05$, ** $p < 0.01$.  

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little or no variance. The continuous variables were therefore collapsed to create a multinominal variable indicating the categories of emotion self-awareness, whereby awareness of each of the three emotions examined here (happy, sad, and angry) was indexed by four categorical variables, with two types of agreement and two types of disagreement.

The two types of agreement were scored whenever observed and reported emotion agreed, and included (1) emotion agreement (category 1): scored whenever the child displayed the emotion for any length of time (range = .53–66.93 seconds) and the child reported upon that emotion in the posttest report (i.e., child displayed the emotion and reported feeling that emotion), and (2) neutral agreement (category 2): scored whenever the emotion was not observed by the coder and the child reported feeling neutral (i.e., child did not display the emotion and reported not feeling that emotion).

The two types of disagreement were scored whenever the observed emotion and the reported emotion did not agree, and included: (1) observed-reported disagreement (category 3): scored whenever the child displayed the emotion for any length of time but did not report feeling it, and (2) reported-observed disagreement (category 4): scored whenever the child did not display the emotion but reported feeling it.

Results

Gender Differences

Given related empirical evidence, gender was examined in order to determine appropriate models. Prior to conducting the primary analyses, one-way analyses of variance were conducted on all predictor variables and chi-square tests were run on all outcome variables to determine gender differences. No significant differences were found for girls or boys with respect to the outcome or predictor variables (all \( p > .18 \)).

Despite the lack of differences in self-awareness of emotion, analyses revealed that children’s self-reports did demonstrate gender differences, with girls reporting significantly more sadness (\( M = .65 \)) at the end of the delay as compared to boys (\( M = .23 \)), \( F (1, 82) = 4.81, p < .05 \). There were no gender differences for reported happiness or anger, however. Analyses therefore were conducted collapsing across gender for all models with the exception of sadness.

Observed and Self-reported Emotion During a Delay Task

Emotion self-awareness was operationalized as the concordance between the child’s non-verbal report and observed expression during a solitary standardized delay of gratification. In order to determine that the delay generated emotions that the children expressed and could report on, we examined change in both measures from the pretest to the posttest. Descriptive statistics for observed and self-reported emotion during the delay are reported in Table 3.

Self-reported Emotion. Paired \( t \)-tests revealed that children reported significantly more happiness (\( M = 1.45 \)) as compared to sadness (\( M = .45 \)) following delay (paired \( t = 6.57, p < .001 \)), and significantly more happiness as compared to anger (\( M = .26 \)) following delay (paired \( t = 4.95, p < .001 \)).

Using children’s emotion reported on the self-report scale prior to the delay (pretest report), changes in children’s reported emotion from before to after the delay task were
examined. Children reported feeling slightly more sadness ($M_{\text{pretest}} = .20; M_{\text{posttest}} = .45$) and moderately less happiness ($M_{\text{pretest}} = 2.19; M_{\text{posttest}} = 1.45$) from pre- to post-delay ($t = -2.12, p < .05$; $t = 4.51, p < .001$, respectively). Reports of anger did not significantly change from before to after the delay task.

**Observed Emotion.** There were no significant differences in mean duration of time or the proportion of time children were observed expressing each emotion during the 10-minute task. However, on average, children expressed more happiness during the first half of the task ($M_{\text{1st 5 minutes}} = 4.24$ seconds, $M_{\text{last 5 minutes}} = 1.41$ seconds), whereas they expressed more sadness during the last five minutes of the task ($M_{\text{1st 5 minutes}} = .87$ seconds, $M_{\text{last 5 minutes}} = 2.98$ seconds). In contrast, when anger was expressed, it was expressed in comparable amounts for the first and second halves of the wait ($M_{\text{1st 5 minutes}} = 2.36$ seconds, $M_{\text{last 5 minutes}} = 3.49$ seconds).

**Relations between Observed and Self-reported Emotion.** Because duration of expressed emotion is highly associated with the intensity of the expressed emotion, the duration of each expressed emotion was converted into a proportion score. Associations between self-reported intensity (0–3) and the proportion of observed emotion were as follows: Children’s reports of anger following delay were not associated with observed anger ($r = .13, p = .24$). In contrast, reports of sadness ($r = .40, p < .001$) were significantly correlated with observed sadness, and there was a trend for reports of happiness to be correlated with observed happiness ($r = .19, p < .10$). That is, children observed to express sadness for a greater proportion of the time they were observed during the delay also reported higher intensity sadness on the self-report scale, and children observed to express happiness for a greater proportion of time they were observed during the delay reported higher intensity happiness on the self-report scale.

**Maternal ERSBs and Children’s Emotion Self-awareness**

The self-awareness outcome variables for each emotion were defined as nominal, to prevent potential bias due to assumptions made regarding the ordinal values of the observed-self reported ‘concordant’ and ‘discordant’ categories (Long, 1997) within the construct of emotion self-awareness. The observed frequencies of contingencies of

<table>
<thead>
<tr>
<th>Table 3. Descriptive Statistics for Self-reported and Observed Emotion during a Delay of Gratification</th>
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<tbody>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td><strong>Self-reported emotion (three-point Likert scale)</strong></td>
</tr>
<tr>
<td>Happy</td>
</tr>
<tr>
<td>Sad</td>
</tr>
<tr>
<td>Angry</td>
</tr>
<tr>
<td><strong>Observed (duration in seconds)</strong></td>
</tr>
<tr>
<td>Happy</td>
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<tr>
<td>Sad</td>
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<td>Angry</td>
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each category for the emotion self-awareness variable are depicted in Figure 1. Multinomial logit models (MNLM) were used to examine associations between maternal socialization and each of the emotion self-awareness measures (awareness of happiness, sadness, and anger). Receptive vocabulary was included in all models as a covariate due to the nature of the self-report measure, and the observed-self-reported agreement for each emotion was used as the reference category. MNLM models for the ERSBs models are presented in Tables 4–6.

**Happiness.** With respect to happiness (Table 4), the overall model for supportive ERSBs was significant ($\chi^2 = 12.87, p < .05$) and the Nagelkerke pseudo-$R^2$ suggested that the model accounted for 21 percent of the variance in happiness awareness. Supportive ERSBs were statistically significant after controlling for receptive language ability ($\chi^2 = 10.13, p < .05$). Specifically, supportive ERSBs distinguished both disagreement categories 3 and 4 (i.e., expressed happiness but did not report it, and reported happiness but did not express it, respectively) from category 1 (i.e., expressed and reported feeling happiness) ($e^{b} = .57$ and $.54$, respectively, $ps < .05$). The odds ratios suggested that a one standard deviation increase in supportive ERSBs approximately doubled the predicted odds for a match between observed and self-reported happiness as opposed to either of the disagreement categories for observed and expressed emotion. Inspection of the classification table reveals that the model best categorized children who reported and expressed their happiness (86.2 percent correct). In sum, supportive maternal ERSBs at 4.5 years longitudinally predicted children’s self-awareness of happiness one year later, such that children who experienced supportive ERSBs were more than twice as likely to be self-aware of their own happiness, as indexed by the concordance between observed and self-reported happiness. In contrast, the overall
model utilizing maternal non-supportive ERSB’s at 4.5 years to predict children’s awareness of happiness one year later was not significant ($\chi^2 = 2.23$, $p = .69$).

**Table 4. Odds Ratios and 95 Percent CI for Maternal Supportive$^a$ and Non-supportive$^b$ ERSBs Predicting Children’s Happiness Self-awareness Categories (vs. Observed/Reported Happiness Match)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Neutral match</th>
<th>Observed/not reported</th>
<th>Reported/not observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptive language</td>
<td>1.04 (.96, 1.12)</td>
<td>.98 (.92, 1.04)</td>
<td>.99 (.94, 1.04)</td>
</tr>
<tr>
<td>Supportive ERSBs</td>
<td>.64 (.36, 1.17)</td>
<td>.57 (.35, .93)*</td>
<td>.54 (.34, .85)**</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Neutral match</th>
<th>Observed/not reported</th>
<th>Reported/not observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptive language</td>
<td>1.05 (.97, 1.12)</td>
<td>.97 (.93, 1.04)</td>
<td>1.00 (.95, 1.05)</td>
</tr>
<tr>
<td>Non-supportive ERSBs</td>
<td>1.21 (.75, 1.96)</td>
<td>1.24 (.85, 1.82)</td>
<td>1.05 (.75, 1.48)</td>
</tr>
</tbody>
</table>

Note: CI = confidence intervals; ERSB = emotion-related socialization behaviors.

$^a$ Model $\chi^2 = 12.87$, df = 6, $p < .05$; $^b$ Model $\chi^2 = 4.39$, df = 6, NS.

$^* p < .05$, $^{**} p < .01$.

**Table 5. Odds Ratios and 95 Percent CI for Maternal Supportive$^a$ and Non-supportive$^b$ ERSBs Predicting Children’s Sadness Self-awareness Categories (vs. Observed/Reported Sadness Match)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Neutral match</th>
<th>Observed/not reported</th>
<th>Reported/not observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptive language</td>
<td>1.05 (.95, 1.17)</td>
<td>1.01 (.91, 1.12)</td>
<td>1.14 (1.01, 1.29)</td>
</tr>
<tr>
<td>Supportive ERSBs</td>
<td>.79 (.38, 1.63)</td>
<td>.81 (.38, 1.72)</td>
<td>.83 (.37, 1.84)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Neutral match</th>
<th>Observed/not reported</th>
<th>Reported/not observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptive language</td>
<td>1.05 (.53, 1.16)</td>
<td>1.01 (.91, 1.12)</td>
<td>1.14 (1.01, 1.30)*</td>
</tr>
<tr>
<td>Non-supportive ERSBs</td>
<td>1.01 (.52, 1.95)</td>
<td>1.32 (.67, 2.61)</td>
<td>1.77 (.81, 3.87)*</td>
</tr>
</tbody>
</table>

Note: CI = confidence intervals; ERSB = emotion-related socialization behaviors.

$^a$ Model $\chi^2 = 11.43$, df = 6, NS, $^b$ Model $\chi^2 = 18.07$, df = 6, $p < .05$.

$^* p < .05$.

Sadness. For sadness, the overall models for supportive and non-supportive ERSBs, run separately by gender, were non-significant ($ps > .65$); however, the small size of the subsamples resulted in singularities in the matrices. This caused the model’s validity to
be questionable for the gender subsamples; therefore all analyses were rerun, collapsing across gender (Table 5). The overall model for supportive ERSBs indicated a trend toward significance ($\chi^2 = 11.44, p = .08$). Although the overall model classified the children into groups correctly 63 percent of the time, it was particularly poor at classifying children into all other categories except the category with the highest base rate for this emotion (category 2: neutral agreement). All other categories were observed to be distinguished at a hit rate of 0–18 percent. Because the observed base rate for category 2 was less than five, the supportive ERSBs model was rerun collapsing across the two types of agreement (categories 1 and 2). The model for supportive ERSBs with collapsed sadness self-awareness categories was significant ($\chi^2 = 10.01, p < .05$); however, supportive ERSBs contributed very little to the model. Instead, only the PPVT test scores explained the variance related to children’s emotion self-awareness of sadness ($\chi^2 = 9.98, p < .01$). Specifically, the parameter estimates suggested that a one standard deviation increase in PPVT scores made it 8 percent more likely for children to be in category 4 (reported sadness but did not express it) as compared to category 1 (reported and expressed sadness) ($e^\beta = 1.08, p < .05$). Again, the model was particularly poor at classifying children into all other categories except the category with the highest base rate for this emotion (the collapsed agreement category).

The overall model for non-supportive ERSBs was significant at the .01 level ($\chi^2 = 18.07$) and described 28 percent of the variance in self-awareness of sadness based on the Nagelkerke pseudo $R$-squared estimate. There was a trend toward indicating that non-supportive ERSBs were predictive of self-awareness of sadness ($\chi^2 = 7.01, p = .06$) such that a one standard deviation increase in non-supportive ERSBs increased the odds of being in category 4 (reported sadness but did not express it) as compared to category 1 (reported and expressed sadness) ($e^\beta = 1.77, p = .15$). PPVT scores were a statistically significant predictor of self-awareness of sadness ($\chi^2 = 11.65, p < .01$). A one standard deviation increase in receptive language skill made a child 14 percent more likely to be in category 4 as compared to category 1.
Overall, the model classified 62.9 percent of children correctly; however, similar to the supportive ERSBs model, the non-supportive ERSBs model classified the self-awareness of sadness categories no better than chance, with the exception of the category with the highest base rate; specifically, the classification of children who did not express or self-report any sadness was 92 percent correct, whereas all other categories were predicted no better than chance using this model.

Because the base rate for category 1 during the delay was less than five, the analyses were rerun, collapsing cross the two types of agreement (categories 1 and 2). The overall model for non-supportive ERSBs utilizing the collapsed categories was significant ($\chi^2 = 17.01, p < .05$) and was 67.7 percent correct at classifying children into self-awareness categories. Non-supportive ERSBs and PPVT scores were both significant predictors of (low) self-awareness of sadness ($\chi^2 = 7.02, p < .05$ and $\chi^2 = 10.60$, $p < .01$, respectively) such that, after controlling for receptive language, a one standard deviation increase in non-supportive ERSBs made a child 75 percent more likely to be in category 4 as compared to category 1 ($e^b = 1.75, p < .05$). Although this model was highly successful with predicting children in category 1 (concordance between expressed and reported sadness), the model classified children no better than chance into the categories with lower base rates.

**Anger.** For anger (Table 6), the overall models for both supportive and non-supportive ERSBs were non-significant ($ps > .21$), and the full models distinguished children no better than chance into each of the four categories (51.6 and 48.4 percent correct, respectively). Because the observed base rate for category 3 was less than five, both socialization models were rerun collapsing across the two types of disagreement (categories 3 and 4). Again, both the supportive and non-supportive ERSBs models were not significant ($ps > .19$). The socialization parameters contributed very little to either the full or collapsed models. In sum, the models utilizing maternal ERSBs were not a good fit for predicting 5.5-year olds’ awareness of anger overall.

**Discussion**

The current investigation examined relations between maternal emotion socialization and children’s developing awareness of their own emotion. The results provide support for, as well as extend, previous research on the importance of maternal socialization of emotion during the preschool years. To our knowledge, this was the first study to examine the socialization processes contributing to children’s developing emotion self-awareness. Despite the difficulties inherent in obtaining a measure of children’s emotion self-awareness, we found longitudinal relations between maternal emotion-related socialization and children’s awareness of happiness and sadness. These relations replicated previous research suggesting that supportive socialization predicts positive child outcomes, whereas non-supportive socialization predicts negative child outcomes.

Utilizing Eisenberg et al.’s (1998) model of ERSBs, we found that mothers’ supportive ERSBs predicted children’s ability to report upon their own expressed happiness. These mothers were more likely to encourage their child’s expression of negative emotion, validate their negative emotional states, or respond to their child’s negative emotion in productive ways (e.g., engaging the child in problem solving to model successful coping strategies). Acknowledging children’s negative emotions and socializing them about how to deal with them appears to improve children’s ability to report upon their own experience of positive emotion. It may also be that these socialization
methods engender a positive environment for the child that encourages self-regulation of emotion in challenging contexts.

In contrast, after controlling for receptive language, non-supportive ERSBs appeared to have a detrimental effect on children’s awareness of their own sadness. Children exposed to non-supportive maternal socialization practices were more likely to report feeling sad but not express sadness. This model of non-supportive socialization was best at distinguishing this category of discordance from concordance. In this study, non-supportive emotion socialization included reactions to children’s negative emotion that resulted in maternal distress, minimized the child’s experience, or even punished it. Along with these ineffective reactions to the child’s emotion, these mothers were more likely to spend more time talking about things other than the emotion-related content of a recent disappointment. Although a small percentage of our sample reported self-awareness of sadness, it seems reasonable that exposure to such contexts would impact the child’s expression or reports of sadness. These findings support past research and extend the potential detrimental effects of less optimal socialization styles to include children’s understanding of their own emotions as they experience them in context.

Socialization practices did not appear to have a significant impact on children’s awareness of anger, however. Given our findings regarding the emotions elicited during the task, it may be that the delay of gratification task was not an adequate context to use when assessing anger awareness. Because anger was not very strongly elicited overall, and diffused across the entirety of the 10-minute task, the task may have lacked the salience in anger-elicitation necessary to test young children on a skill that arguably may not have developed completely.

Lastly, sex differences in emotion self-awareness were not found. This sample also did not demonstrate sex differences in receptive language or other emotion-related variables (e.g., expression, emotion understanding) that have shown such differences in other samples (Cole, 1986; Zeman & Garber, 1996). In our study, children were alone the entirety of the delay of gratification task. If sex differences in observed emotion are the result of socialization forces that teach children socially appropriate ways to express one’s emotion, these norms may play less of a role in a non-social context. Although self-reports of sadness showed differences by sex, observed sadness did not, lending support to a context-specific explanation. It is important to note that limited statistical power to detect such differences may also have played a role.

The Complexity of the Measurement of Emotion Self-awareness

Clearly, the portrait of self-awareness is a complex one, in which related abilities, sex, and the nature of the emotion-eliciting task (e.g., the emotions the task is designed to elicit in the presence/absence of another) may or may not come into play. Indeed, the current research literature is replete with contradictory findings regarding the associations between observed and self-reported emotion (e.g., Casey, 1993; Chisholm & Strayer, 1995; Eisenberg et al., 1989; Underwood & Bjornstad, 2001). It may be that these contradictive findings are in part due to task differences.

Firstly, the validity of a self-report of emotion measure for young children depends on how these reports are obtained. A central contribution of the current study was the use of a developmentally appropriate scale. This scale allowed children to report on the actual emotion felt, and indicate the intensity of that emotion, without separating intensity from the felt emotion, as in previous studies (Olthof & Engelberts-Vaske, 1997). Instead of relying upon the child’s perspective-taking ability (as with story
vignettes), children in the current investigation were asked to report upon their emotion within an ongoing contextually valid situation. That is, the reports were obtained while the child was still within the context of an ongoing wait. Furthermore, the prize was kept salient, but the exact type of gift was still unknown. A review of the current literature suggests there is a dearth of investigations which examine this and related constructs within such contextually valid situations.

Finally, when the relations between various measures of emotion are examined, it is rare for each of the observed emotions to be examined specifically; instead the focus remains upon children’s emotions more generally. Previous studies regarding children’s emotional experience primarily focus upon children’s emotion more broadly defined (e.g., ‘negative emotion’ or ‘feeling bad’), obscuring the differences between anger and sadness (Zeman, Shipman, & Penza-Clyve, 2001).

In conclusion, reporting on one’s felt emotion is a difficult task for adults and children alike. However, when placed in a context designed to elicit negative emotion, children were able to report their increasing negative emotion and decreasing positive emotion via the self-report scale. Children reported feeling slightly more sadness and moderately less happiness from before to after the 10-minute wait whereas their reports of anger did not change over time. In addition, children reported feeling more happiness overall, as opposed to sadness or anger, following the delay. These findings indicate the children perceived the standardized delay event as a negative emotion-eliciting experience that reduces positive and increases negative felt emotion on the one hand; on the other hand, they do not find it to be overwhelmingly unpleasant, and are left feeling more happy than angry or sad at the end of the task. Perhaps five-year-olds are able to maintain their excitement about getting a prize, despite having to wait, or felt the presence of an experimenter foreshadowed the reception of the prize. Furthermore, if the children expressed any negative emotion to the delay they were more likely to express sadness as opposed to anger or frustration. Indeed, children were left alone for 10 minutes to wait, and this solitary experience and the length of the delay may have induced this emotion. That is, children who expressed sadness may have felt lonely or they may have felt their goal of counting tickets to get the prize to be unobtainable after such a long delay (Carver & Shearer, 1998).

Taken together, these findings suggest that the children were able to demonstrate self-awareness of the changing nature of both their happiness and sadness when participating in this task. However, the data reported here, combined with related empirical evidence on children’s emotion understanding, support the argument that awareness of one’s own anger may emerge later in development. Finally, the context of the emotional event appears to be an important factor in the associations between observed and self-reported behavior, as well as the notable lack of sex differences in the current investigation.

Limitations and Future Research

The current study has laid substantial groundwork indexing and understanding precursors to children’s emotion self-awareness in preschool populations. However, there are a few notable limitations of this investigation. Firstly, the generalizability of these findings is limited to educated middle class families, and the influences of maternal socialization on young children’s emotion self-awareness. Future studies should also obtain measurements of father’s ERSBs and their children’s emotional awareness.
Secondly, this study was limited by its novel attempt to measure observed and reported emotion and index their concordance. Despite the strengths of the self-report measure already outlined, overlap in the mouth region for the low intensity sad and angry stimuli may have confounded children’s self-reports. In addition, concordance ideally would be indexed continuously, thereby placing levels of awareness along a continuum. The current investigation attempted to do so, but this was precluded by restricted range and non-normal distributions. Ultimately, because the measurement of awareness, *per se*, is difficult in general, methodological rigor may improve future inquiry of children’s emotion self-awareness, particularly if a continuous index of this ability is obtainable.

A central issue is how to interpret potential causes of associations or non-associations between children’s observed and reported emotion. It is important for future research to measure display rule knowledge, masking of felt emotions, and/or unconscious display of emotions, to best understand their implications upon the concordance measure. Future research should also consider examining each of these constructs within more than one context (e.g., both solitary and interpersonal within the same sample). Given the potential influence the presence of another person may have on one’s emotional experience, a comparison of contexts may further elucidate the causes of contradictory findings regarding associations between the observed and self-reported emotions of young children. Furthermore, it is important both of the observed contexts elicit a wider range of levels of emotion when observing children’s self-aware behavior.

We sought to measure young children’s self-awareness of emotion, and understand the potential contribution of antecedent socialization processes thought to contribute to its development in young children. Our results demonstrated that the concordance between observed and self-reported emotion does serve as a useful operationalization for understanding children’s awareness of their own emotional experience. These findings further substantiate recent research, which suggests this is a useful working definition of emotion self-awareness (Strayer & Roberts, 2004). Moreover, we found mothers’ supportive and non-supportive emotion socialization behaviors were predictive of children’s emotion self-awareness outcomes, with supportive strategies improving children’s awareness of happiness and non-supportive strategies impeding children’s awareness of sadness as measured in the context of a delay situation. Despite the restrictiveness of the sample and the difficulties with the assessment of concordance, this study offers new information about the importance of emotion socialization processes for the development of children’s self-aware emotional functioning.

References


Preschoolers’ Emotion Self-awareness


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MH50843) awarded to the second author. This manuscript is based on the first author’s doctoral dissertation and posters presented at the Society for Research in Child Development, April 2005, Atlanta, Georgia. The first author is now at George Mason University.

Notes

1. Mothers and fathers completed the same questionnaires; however, only mothers participated in the observational measure of emotion discourse. Although the importance of fathers as a socialization agent is recognized, the hypothesized relations between the three theorized components of ERSBs and children’s emotion self-awareness were testable only for mothers.

2. Four mother–child dyads were dropped from the 4.5-year observational coding due to experimenter error (loss of video), four mothers did not return the questionnaires from the 4.5-year visit, and six families were unable to return for the 5.5-year follow up.

3. Lay, Waters, Posada, and Ridgeway’s (1995) non-verbal emotion assessment stimuli were utilized to create the happy and sad stimuli; in addition, an adaptation of their anger stimuli was used for the purposes of the present study.

4. Pilot testing of Lay et al.’s (1995) stimuli indicated that four-year-olds were capable of differentiating the degree of emotion among the faces (Elliott, personal communication, March 13, 2000).

5. We wish to thank an anonymous reviewer for bringing this to our attention.

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