Patterns in Mother-Child Internal State Discourse across Four Contexts

Nina Howe  Concordia University  
Christina M. Rinaldi  University of Alberta  
Holly E. Recchia  Concordia University

Internal state language is a unique indicator of children’s social understanding. In the current study, the role of context and type of internal state language was investigated. Mother-child internal state discourse in 32 middle-class Canadian families (child M age = 46.4 months) was examined across four contexts: (1) a reflective picture task, and (2) home interactions characterized by (a) neutral, (b) positive, and (c) negative exchanges. Type of mother and child internal state discourse (cognitions, goals, preferences, emotions) varied across and within the different contexts. The strength of the associations between different types of maternal and child talk also varied across and within contexts, which may illuminate the degree of responsiveness in mother-child discourse. Implications for developing greater family sensitivity to internal states, as well as links with current theory and research, are discussed.

Internal state language (e.g., references to mental and emotional states) has been considered a unique marker of children’s social understanding because it provides insight into how children talk about emotions and think about their own and others’ internal cognitive states (Hughes, Fujisawa, Ensor,
Mothers play a large role in socializing their children to use internal state language via collaborative family discourse during ongoing interactions (Dunn, 1996). Mother-child conversations are viewed as providing a “window” into children’s social and emotional understanding of their worlds (Dunn, 2006; Hughes & de Rosnay, 2006). Collaborative communication between a child and his or her more skilled partner, as well as cooperative social interaction, may facilitate the child’s social and emotional understanding, as argued from a social constructivist perspective (Carpendale & Lewis, 2004). Accordingly, children develop their social understanding or, broadly speaking, their theory of mind, by learning to talk about internal states and manage relationship dynamics during social interaction and discourse with significant others such as parents and siblings (Fivush & Baker-Ward, 2005; Jenkins, Turrell, Kogushi, Lollis, & Ross, 2003; Ruffman, Slade, & Crowe, 2002).

Individual differences in mother-child internal state discourse have been documented (Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991; Howe & Ross, 1990; Recchia & Howe, 2008), and there is some evidence that context influences type of language (Hoff-Ginsberg, 1991; Laible, 2004). Yet, most studies have examined internal state language only in one context, for example pretend play or book reading (Hughes et al., 2006; Ruffman, Slade, Devitt, & Crowe, 2006), often focusing on one type of language such as mental or feeling state language (Dunn & Brown, 1993; Ruffman et al., 2002). Therefore, it is not clear whether reported differences in internal state language across studies are due to methodological issues (e.g., confounding type of language and contexts with varying properties) or actually reflect bona fide context effects. There are theoretical reasons for expecting variability in internal state discourse across different contexts because of the nature and inherent properties of conversations and the goals associated with specific types of social exchanges (de Rosnay & Hughes, 2006). Namely, ongoing family conversations (such as are recorded during home observations) frequently rely on implicit shared meanings and thus require an effort to construct shared understanding between partners, whereas, during shared picture or book reading, the structured and concrete materials may make the referents of dialogue more explicit. These more explicit referents may provide a clear basis from which to construct shared meanings. As such, de Rosnay and Hughes claim this latter context is particularly supportive of discussion.

The present study examined mother-child use of internal state language in four contexts with varying goals and conversational properties. Three contexts were identified during ongoing typical interactions in the home setting, specifically exchanges that were (1) positive, (2) negative, or (3) neutral, each with a different goal (respectively, goals in each context
could include keeping siblings engaged in relatively peaceful ways, dealing with conflictual or agonistic interactions, or maintaining a pleasant but low-level affective tone. The fourth context was a more structured picture task developed to promote reflective mother-child discussion so as to encourage the child’s emotional knowledge and understanding. In the present study, we employed Recchia and Howe’s (2008) categories of internal state language (derived from Jenkins et al., 2003): (a) emotions (e.g., happy, sad), (b) cognitions (e.g., think, know, pretend), (c) preferences (e.g., like, hate), and (d) goals (e.g., want, need).

Socialization of Internal State Discourse

Language is one way children learn about their social environments. In particular, Thompson (2006) argues that critical events during ongoing conversations may promote social understanding. Family discourse about internal states may be one means of highlighting the critical features of affective situations and behaviors (Dunn, 1996) and appears to be associated with the development of children’s social understanding (Dunn, Brown, & Beardsall, 1991; Howe & Rinaldi, 2004). However, according to de Rosnay and Hughes (2006), it is not conversation per se that is important in this process, but rather the nature of the “conversational environments” (p. 28) and children’s linguistic competencies. Thus, our study examined associations between types of internal state language and different conversational contexts in the home setting.

There are wide individual differences in the frequency of maternal and child internal state language (Dunn, Brown, et al., 1991); however, when mothers engage in internal state discourse, their children are also more likely to employ such language (Beeghly, Bretherton, & Mervis 1986; Howe & Ross, 1990; Jenkins et al., 2003; Lagattuta & Wellman, 2002). Although maternal and child internal state discourse are positively associated, perhaps because of the dyadic nature of conversation, the strength of the associations within different contexts has not been examined in detail. Investigating this question will provide an assessment of the degree of responsiveness of internal state discourse between mothers and children and how it varies across and within environmental contexts at home and in a picture task with more focused and concrete properties.

Internal State Language and Context

There is evidence that social context influences mother-child discourse (Laible, 2004); for example, maternal language is more complex and richer
in vocabulary during book reading than toy play (Hoff-Ginsberg, 1991). Recchia and Howe (2008) also found that mothers were more likely than children to refer to internal states during positive home exchanges, but both were equally likely to discuss internal states during negative interactions.

In some studies (e.g., Howe & Ross, 1990; Hughes et al., 2006), measures of the different types of internal state language are collapsed, or only a specific type (e.g., mental states) is investigated (e.g., Taumoepeau & Ruffman, 2008). This approach makes it difficult to assess the specific features (e.g., partners, properties of contexts) that may be of importance for furthering our understanding of the role of such language in children’s developing social understanding. In addition, it makes it difficult to determine cross-context variability in types of internal state language used by different dyadic partners. For example, Jenkins et al. (2003) reported that preschoolers talked (in descending order) about desires, cognitions, and feelings, whereas mothers discussed cognitions and desires most frequently and emotions least frequently. However, the role of specific contexts was not considered in their study; thus we do not know whether these findings would vary across particular contexts (e.g., conflict vs. play). Further, although Ensor and Hughes (2008) reported that both mothers and children referred more to desires than cognitions or emotions, again they did not consider the context in which the references were made. A careful examination of the kinds of internal state language employed in different conversational contexts may reveal that some settings are more conducive to particular types of discourse than are others. As de Rosnay and Hughes (2006) argue, the nature of specific social contexts warrants attention because of the ways in which these contexts may “encourage or constrain children’s participation in social interactions” (p. 22), in this case their use of internal state discourse. To investigate this issue, we examined discourse during ongoing home interactions in which rich and varied exchanges (positive, negative, neutral) may occur and also during a more structured picture-reading task that may encourage pedagogical discourse. As already noted, these contexts are also differentiated by the implicit or explicit need to construct shared meanings regarding the discourse.

**Conversations at home.** During ongoing home interactions, mothers play a central and active role in socializing the use, expression, and understanding of internal state language (Jenkins et al., 2003; Saarni, Mumme, & Campos, 1998). Mothers may have the goal of helping children link their social understanding with real behaviors or actions and with outcomes in a meaningful way so as to influence children’s behavior and development (de Rosnay & Hughes, 2006). Specifically, mothers have the opportunity to employ a guidance approach by labeling internal states and providing
children with practical strategies for regulating emotions and behavior during their interactions with family members (Bronson, 2000). Additionally, children may gain knowledge about how to interpret links between internal states and specific social situations (Cervantes & Callanan, 1998; Dunn, 2000).

Yet, there is wide variability in the nature of ongoing family interactions and conversations (i.e., positive, negative, neutral), which may also indicate that mothers and children have different goals and employ different types of internal state language in these three contexts. For example, during negative interactions characterized by conflict or agonism, mothers may have the goal of achieving a peaceful solution, whereas children may be more focused on obtaining self-interested objectives (Howe, Fiorentino, & Gariépy, 2003; Howe, Rinaldi, Jennings, & Petrakos, 2002). Thus, mothers may be more likely to employ cognitive language (e.g., think, know), whereas children may use more preference language (e.g., want, need). Given the nature of negative or conflictual interactions, children may focus on expressing their desires and may not have the cognitive resources to focus on other types of internal state language. During positive conversations, mothers may wish to promote friendly interaction and employ emotional and cognitive internal state language, which would also be reflected in children’s language. In fact, children were more likely to refer to internal states overall in positive than in negative home contexts (Recchia & Howe, 2008), but the answer to how context influenced the specific types of internal state language is not known. Finally, it is unclear how ongoing neutral exchanges are associated with particular types of internal state language. This context was included in the present study for exploratory purposes and as a basis for comparison with the positive and negative home interaction contexts.

Conversations during picture-book tasks. Mother-child discourse has also been studied in the context of examining pictures or books and during reminiscing tasks about past events (Garner, Dunsmore, & Southam-Gerrow, 2008; Laible & Song, 2006; Symons, Peterson, Slaughter, Roche, & Doyle, 2005). These contexts may encourage conversations that allow for reflective understanding of internal states by promoting direct teaching regarding cognitions, goals, and emotions. Some mothers may also engage in pedagogical or guidance techniques during book-reading contexts; for example, children were more likely to employ emotion words when their mothers asked questions while both were looking at pictures of infants exhibiting a range of affective states (Denham, Cook, & Zoller, 1992). In these reflective contexts, mothers may have the goal of helping children to identify, interpret, and assess specific emotions, situations, or behaviors.
that provoke internal states (Fivush & Baker-Ward, 2005). Thus, as mothers engage in relatively directive, but reflective and analytic, discourse, they may encourage children’s social-emotional understanding (Fivush, 1993; Garner, Jones, Gaddy, & Rennie, 1997; Laible, 2004).

The use of internal state language during collaborative communication between a child and his or her more skilled partner, as well as cooperative social interaction, may be key factors in facilitating children’s social and emotional understanding (e.g., Carpendale & Lewis, 2004). As children learn to manage relationship dynamics with significant others (e.g., parents and siblings) and employ internal state discourse, they gain an understanding of their social worlds. Certainly, this view is reflected in the notion that mother-child conversations may illuminate children’s social understanding (Dunn, 2006; Hughes & de Rosnay, 2006). A more detailed analysis of family discourse is warranted to articulate the specific aspects of conversation that are critical; namely, how patterns of internal state language vary across contexts.

The Present Study

As de Rosnay and Hughes (2006) argue, different contexts may play an important role in the nature of children’s participation in social interactions. Thus, we investigated mother-child internal state discourse in four contexts with varying goals, demands, and properties. Home conversations were differentiated according to positive, negative, or neutral contexts to provide a more nuanced view of naturalistic exchanges; a fourth, more structured picture discussion task was also investigated. These two contexts (home and book or picture tasks) have been widely investigated in the literature on internal state language. However, to our knowledge, this is the first study to conduct such a detailed analysis across and within four contexts, and therefore it makes an important contribution to the literature.

Our first set of questions examined the relative frequency of the four types of maternal and child internal state language in four contexts to determine whether each context was associated with specific types of language. During both positive and negative home interaction, maternal references to cognitions and goals were expected to be more pronounced than references to emotions and preferences. These may be prime contexts for cognitive socialization (e.g., taking others’ points of view) according to Dunn (2006) and Dunn and Brown (1993). Children were predicted to refer most frequently to preferences and goals (rather than cognitions or emotions) during negative and positive home interactions, given their more egocentric points of view and desire to obtain self-interested ends (“I want . . .” or “I
like . . . ”). The neutral home context has rarely been investigated and was included here for comparison purposes. In the picture-task context, both mothers and children were expected to discuss emotions most frequently, given the focus on emotional knowledge (Garner et al., 2008).

The second set of questions addressed the strength of the associations between maternal and child internal state language within contexts, after controlling for child age. These analyses examined the degree of responsiveness in types of mother-child discourse about internal states and how it might vary in different contexts. It was expected that the strength of the associations between particular types of maternal-child internal state language would be stronger in some contexts than others. For example, given the kind of interactions that predominate during positive and negative home interactions (e.g., play, conflict), maternal and child references to preferences (e.g., likes, dislikes) and goals (e.g., wants) were expected to be strongly associated in these contexts. Also, discussion about likes, dislikes, and wants (e.g., liking/disliking particular foods, wanting a specific toy) may be hard to ignore, and mothers and children might be highly responsive to each other, thus increasing the strength of the association of preference and goal language. However, the strength of associations for preference or goal talk was not expected to be strong during the picture task because such talk was less relevant to the task. In contrast, we expected mother and child emotion talk to be strongly associated during the picture task because of the focus of the task materials on emotional expressions and opportunities for reflective and collaborative discourse. Maternal and child references to cognitions (e.g., think, know) were predicted to be strongly related, particularly in the picture task where an analysis of the infant’s emotions might include speculative questions and responses (e.g., “Why do you think the baby is crying?” “I think . . . ”).

Method

Participants

Participants included 32 white, middle-class sibling dyads and their mothers living in a small Canadian city (population 200,000). Firstborns were aged 3–4 years old ($M$ age = 46.4 months, range = 36–58 months) and secondborns were 14 months old (±2 weeks). Dyads were balanced for gender composition (e.g., 8 boy-boy dyads). Based on job descriptions and the average number of years of parental education (mothers = 13.3 years, fathers = 14.2 years) families were generally middle class and representative of the local population. Furthermore, mothers ($M$ age = 28.84 years,
SD = 3.45 years) were primary caretakers (i.e., only 12 worked part time). Families were recruited through birth announcements in the local newspaper (97% participation rate for families meeting the appropriate criteria).

Procedure

For all families, the first author observed each mother and sibling pair in their home during two 40-minute observations conducted over a 2-week period. Mothers were instructed to engage in normal daily routines and to interact with their children in a typical fashion. Prior to each session, the observer spent 15–20 minutes visiting with families to build rapport and to promote naturalistic exchanges. All maternal and sibling discourse was recorded on audiotape, transcribed, and coded as described later; the observer also simultaneously coded the participants’ behavior during the ongoing sessions, and these data are reported elsewhere (Howe & Ross, 1990). After the second home observation, mothers and preschoolers engaged in the Parent-Child Affect Communication Task (PACT) (Zahn-Waxler, Ridgeway, Denham, Usher, & Cole, 1993), which consisted of eight pictures of infants in different affective states (e.g., angry, happy). Mothers and older siblings talked about the pictures as they wished, and some pairs engaged in extensive deliberations, whereas others were extremely brief. All conversations were audiotaped, transcribed, and coded as described in the Parent-Child Affect Communication Task section.

Measures

Internal state language at home. The frequency and type of maternal and older sibling references to the internal states directed only to each other were coded from transcripts of the home observations (see the Appendix); other targets (e.g., younger sibling, observer) and self-vocalizations were not coded. The coding scheme was based on work by Recchia and Howe (2008) and Jenkins et al. (2003); definitions and examples of the four types of internal state language (i.e., cognitions, emotions, goals, preferences) are included in the Appendix. To categorize the positive, negative, or neutral context of the internal state language (based on Recchia & Howe, 2008; see the Appendix), we consulted the transcripts for information about the tone of voice and nature of exchanges (play, conflict); the aforementioned behavioral codes provided another source for describing the quality of the interaction (e.g., prohibits, smiles).

Parent-Child Affect Communication Task. The PACT assessed emotional recognition and understanding by examining participants’ language
Internal State Language during a semistructured picture task (Howe & Rinaldi, 2004; Zahn-Waxler et al., 1993). The task included eight pictures of infants each exhibiting a different emotional state (surprise, joy, interest, sadness, anger, disgust, contempt, fear). Mothers and children were asked to look at the pictures and discuss them in any way that they wished. Sessions were audiotaped, transcribed, and coded for the frequency of maternal and child references to internal state words (see the Appendix).

Reliability

The third author and a naive assistant conducted the internal state language coding reliability for the home observations on a random sample of transcripts (25%, 16/64). Percent agreement for initial identification of lines to be coded was calculated as agreements/(agreements + disagreements); interrater agreement was 88%; kappa = .98 for category and .64 for context. The naive coder and the first author then coded the internal state language for the picture task; reliability was calculated on a random sample (25%, 8/32) of the transcripts (percent agreement = 95%, kappa = .91).

Results

Frequencies of Internal State Language in Different Contexts

Descriptive statistics for the children’s and mothers’ use of each type of internal state language in each interaction context are reported in Table 1. Preliminary analyses did not reveal any unique or interactive effects of child gender, so it was not included in further analyses.

Plan of Analyses

We conducted two separate 4 (type of internal state language: cognitions, emotions, goals, preferences) × 4 (context: PACT, negative home, neutral home, positive home) repeated measures (analyses of variance [ANOVAs]) to examine effects for mothers’ and children’s use of internal state language, respectively. In each case, child age was entered as a standardized covariate. The Greenhouse-Geisser correction was applied when sphericity assumptions were violated (in these cases, adjusted degrees of freedom are reported for F tests below), and the Bonferroni correction was used for ANOVA post hoc tests. Alpha levels were set at p < .05 (two-tailed). Finally, we examined variability in the strength of the associations between maternal and child use of the types of internal state language as a function of context.
Maternal Internal State Language by Type and Context

First, we examined maternal use of language by type and context. The analysis revealed main effects of type, \( F(1.92, 57.71) = 60.83, p < .001, \eta^2 = .67 \), and context, \( F(2.27, 67.95) = 23.26, p < .001, \eta^2 = .44 \). However, these effects were qualified by the two-way interaction between type and context, \( F(2.89, 86.55) = 34.02, p < .001, \eta^2 = .53 \). Maternal talk about cognitions occurred more frequently in a positive home context and the PACT (picture task) than in a negative or neutral home context. In turn, as expected, maternal talk about emotions was more frequent in the PACT than in any other context. Talk about emotions was also more frequent in a positive than a neutral home context. In contrast, mothers talked most about goals during positive interactions, followed by negative and neutral home contexts (which did not differ). Talk about goals during the PACT was least frequent. Mothers talked more about preferences in a positive than a negative home context. There were no other significant differences between means (see Table 1). These findings provide partial support for our hypotheses, in particular that mothers would talk about cognition, goals, and preferences most often in the positive home context. The negative home context had also been predicted to be a prime context for internal state discourse; however, this was not the case, although it was of secondary importance for discussion of goals and preferences.

Table 1. Descriptive Statistics for Children’s and Mothers’ Use of Internal State Language as a Function of Interaction Context

<table>
<thead>
<tr>
<th></th>
<th>Cognitions M (SD)</th>
<th>Emotions M (SD)</th>
<th>Goals M (SD)</th>
<th>Preferences M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mother</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PACT</td>
<td>11.50 (7.68)</td>
<td>10.81 (8.46)</td>
<td>2.03 (3.60)</td>
<td>.66 (1.52)</td>
</tr>
<tr>
<td>Negative home</td>
<td>3.09 (3.73)</td>
<td>1.50 (2.21)</td>
<td>6.16 (5.98)</td>
<td>.66 (1.18)</td>
</tr>
<tr>
<td>Neutral home</td>
<td>6.13 (5.81)</td>
<td>.53 (.98)</td>
<td>6.59 (5.62)</td>
<td>.84 (1.65)</td>
</tr>
<tr>
<td>Positive home</td>
<td>12.66 (9.77)</td>
<td>2.69 (3.14)</td>
<td>21.44 (16.13)</td>
<td>1.41 (1.72)</td>
</tr>
<tr>
<td><strong>Child</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PACT task</td>
<td>4.22 (4.43)</td>
<td>5.78 (3.67)</td>
<td>1.47 (2.81)</td>
<td>.09 (.39)</td>
</tr>
<tr>
<td>Negative home</td>
<td>.91 (1.33)</td>
<td>.56 (1.05)</td>
<td>8.94 (10.66)</td>
<td>.41 (1.24)</td>
</tr>
<tr>
<td>Neutral home</td>
<td>2.63 (2.30)</td>
<td>.47 (.72)</td>
<td>5.41 (3.77)</td>
<td>.69 (1.12)</td>
</tr>
<tr>
<td>Positive home</td>
<td>6.97 (5.10)</td>
<td>.91 (1.25)</td>
<td>18.50 (11.88)</td>
<td>1.25 (1.59)</td>
</tr>
</tbody>
</table>

PACT = Parent-Child Affect Communication Task.
**Child Internal State Language by Type and Context**

The purpose of these analyses was to examine child use of internal state language according to type and context. The ANOVA revealed main effects of type, $F(1.26, 37.84) = 53.09, p < .001, \eta^2 = .64$, and context, $F(2.31, 69.32) = 23.16, p < .001, \eta^2 = .44$. However, these effects were qualified by the two-way interaction between type and context, $F(3.07, 92.13) = 33.41, p < .001, \eta^2 = .53$. Children talked less about cognitions in a negative home context than in any other context. Further, talk about cognitions in a neutral home context was less frequent than in a positive home context; as predicted, the positive home context was associated with the most cognition talk. Not surprisingly, as predicted, children talked more about emotions during the PACT than in any other context. Further, as expected, children’s talk about goals was most frequent in a positive home context, followed by negative and neutral home contexts; the frequencies of goal talk in these two latter contexts did not differ. Talk about goals was least frequent in the PACT. Finally, talk about preferences was less frequent in the PACT than in positive or neutral home contexts, partly supporting the hypothesis regarding positive and negative home contexts as promoting preference talk. There were no other significant mean differences for children (see Table 1).

**Associations between Frequencies of Internal State Language**

To examine links between mothers’ and children’s talk about particular types of internal state language in specific contexts, we conducted a series of partial correlations (with child age controlled). Associations are reported in Table 2. We were especially interested in variability in the strength of these associations as a function of type of internal state language (i.e., cognitions, emotions, goals, and preferences) and as a function of context (i.e., PACT, three home environments). Thus, we used $r$ to $z$ transformations to test whether the strength of the correlations varied significantly within a set. For instance, we examined whether the association between mothers’ and children’s talk about cognitions was stronger in one context than another. The results of these tests are summarized in Table 2. The association for talk about emotions was stronger in a neutral home context than in a negative or positive home context. Similarly, the association for preferences was stronger in a neutral home context than in any other context. Within the PACT, mothers’ and children’s talk about cognitions and goals was more strongly linked than their talk about preferences, as expected. In a negative home context, mothers’ and children’s
talk about goals was more strongly associated than their talk about emotions, again supporting the hypothesis. Similarly, in a positive home context, mothers’ and children’s talk about goals was more strongly linked than their talk about emotions and preferences, providing partial support for the hypothesis.

**Discussion**

First, the findings related to the type and frequency of maternal and child internal state language within contexts are discussed. Second, we present results regarding how the strength of the associations varied as a function of type of language and context, after controlling for child age. Before discussing the findings, it is important to note that our study has some limitations, such as the small and relatively homogeneous sample, which restricts generalizability of the findings. Yet, the sample was representative of the community studied. Further, the order of the picture task was not counterbalanced across families; thus it is possible that the mother-child picture discourse was affected in some way (e.g., fatigue, nature of prior interactions). Certainly, the correlational data limit the conclusions that can be drawn about the causal patterns underlying the results. Nevertheless, the rich nature of the findings is intriguing and suggests questions for future research.

**Table 2.** Associations between Mothers’ and Children’s Talk about Specific Types of Internal States within a Context (Child Age Controlled; N = 32)

<table>
<thead>
<tr>
<th>Cognitions</th>
<th>Emotions</th>
<th>Goals</th>
<th>Preferences</th>
</tr>
</thead>
<tbody>
<tr>
<td>PACT</td>
<td>.62^1</td>
<td>.59</td>
<td>.78^1</td>
</tr>
<tr>
<td>Negative home</td>
<td>.44</td>
<td>.28^{a1}</td>
<td>.68^2</td>
</tr>
<tr>
<td>Neutral home</td>
<td>.64</td>
<td>.76^{b1}</td>
<td>.76</td>
</tr>
<tr>
<td>Positive home</td>
<td>.58^{b1}</td>
<td>.28^{a1}</td>
<td>.83^{b1}</td>
</tr>
</tbody>
</table>

Note. All correlations of r > .30 are significant at p < .05. Dissimilar alphabetic superscripts indicate significant differences between correlations in a column (e.g., the association between mothers’ and children’s use of emotion talk is stronger in a neutral home context than a negative or positive home context). Dissimilar numeric superscripts indicate significant differences between correlations in a row (e.g., in the Parent-Child Affect Communication Task [PACT], the associations between mothers’ and children’s talk about cognitions and goals are stronger than the association for their talk about preferences). Dissimilar Roman numeral superscripts indicate significant differences only in the row for the positive home context (i.e., associations between mothers’ and children’s talk about goals is stronger than the association for their talk about cognitions; the latter was not significantly different than talk associations between emotions or preferences).
Maternal and Child Internal State Language by Type and Context

The overall picture provided by the first set of analyses indicated that context was an important, but perhaps sometimes subtle, variable in understanding the type and frequency of internal state language employed by mothers and children. A number of similarities were noted in the type of family internal state language employed, particularly in the three home contexts, whereas the picture task (PACT) context sometimes presented a different pattern. These patterns point to the importance of considering the inherent properties of different contexts in influencing mothers’ and children’s behaviors.

First, maternal references to the different types of internal state language varied according to the four contexts. Mothers were more likely to refer to cognitions in the positive home and picture task contexts than in the negative or neutral home contexts. Maternal references to goals were most likely during the positive home context, followed by the negative and neutral contexts (that did not differ), and were least frequent during the picture task. Mothers made more references to preferences during the positive home context than in the other contexts. In contrast, mothers were more likely to refer to emotions during the picture task than the other three contexts; however, they were also more likely to use more emotion talk during positive than neutral home contexts.

Similarly, child talk about emotions was most frequent during the picture session compared to the three home contexts, in which preschoolers engaged in relatively little emotion talk. The pattern for child references to goals was similar to mothers’ talk; it occurred most frequently in the positive home context, followed by the negative and neutral contexts (that did not differ), and was observed least frequently during the picture task session. The pattern of child talk about cognitions occurred least during the negative home context compared to the other three contexts, in contrast to maternal talk about cognitions, which occurred most frequently during the positive home and picture task sessions. Apparently, the negative home context was less conducive for either mother or children to talk about cognitions, perhaps because it may be difficult to reflect on mental states in the heat of an argument. Finally, child talk about preferences occurred less frequently during the picture session compared to the positive or neutral home contexts, which does not seem surprising. Given that talk about preferences related to the child’s likes and dislikes, the home contexts probably offer greater opportunities for children to express their preferences than during a more structured discussion focusing on emotional knowledge.

Mothers were most likely to engage in discourse about cognitions, preferences, and goals, and children also talked about goals during the
positive home context. Given the friendlier tone of positive exchanges, it may be easier for families to become engaged in more elaborated discussion about goals, preferences, and cognitions compared to when families are involved in conflict or negative interactions. Furthermore, mothers’ use of these types of language may reflect particular socialization goals; that is, mothers may be initiating more language of this type to label, guide, point out, and explain specific behaviors, desires, and thoughts so as to help their children to link their social understanding with real behaviors and actions in a meaningful way (Cervantes & Callanan, 1998; Dunn, 2000). Of course, mothers might also engage in this type of discourse during negative interactions. It was during the positive home context that children were also most likely to engage in discourse about their goals (wants, needs). Perhaps maternal language about goals was a response to child initiations, a point we return to in the section Associations between Maternal and Child Internal State Language.

As expected, families referred most frequently to emotions during the picture task, and clearly the concrete and explicit properties of the task influenced the types of internal state language employed and may have promoted a shared understanding about the meaning of emotions in some families. That is, some mothers may have had a specific pedagogical goal here compared to the more open-ended home contexts; namely, to assess the emotional expressions of the infants in the pictures. Individual differences in the nature of the discourse revealed that in some families these reflective discussions centered on identifying specific emotional states and their causes and outcomes (Howe & Rinaldi, 2004), suggesting that the dyad partners were coconstructing some shared meanings about the pictures. We speculate that discourse about causes and outcomes of emotions also promoted mothers’ talk about cognitions (e.g., “Why do you think the baby is crying?”), given that maternal cognition talk was most frequent in the picture task (and also in the positive home context). A review of the picture task transcripts revealed that mothers did probe their children to speculate about why the infant might be experiencing a particular feeling and indicates the pedagogical nature of discourse, at least in some families.

These findings provide support for de Rosnay and Hughes’s (2006) argument that specific contexts may enhance or hinder particular kinds of social interactions and the construction of shared meanings about the interaction. For example, learning about emotions might be enhanced for children in an explicit context that focuses on discourse related to understanding and interpreting information about individuals expressing a range of feelings (Garner et al., 1997; Laible, 2004). Further, the findings support the view that the acquisition of particular kinds of vocabulary may be more
likely in some contexts than others. Given arguments that specific vocabulary is necessary for children to label, reflect, and represent internal states as they acquire social understanding (Ensor & Hughes, 2008), our detailed examination of conversational contexts with varying properties provides insight into their role in this process.

**Associations between Maternal and Child Internal State Language**

Examining the strength of the associations between maternal and child references to types of internal state language both across and within contexts may provide an assessment of the responsiveness of dyadic partners to each other’s use of specific types of language. The strength of the association for maternal and child talk about emotions was stronger in the neutral context than in the negative or positive home contexts; similarly, the strength of the association for family talk about preferences was strongest in the neutral home context. Perhaps exchanges during the neutral context were less affectively intense than during the other two home contexts. One implication may be that neutral contexts afford greater opportunities for more connected or responsive mother-child dialogue. In the process, this neutral context may have enabled mothers and children to coconstruct a shared perspective about the topic of their conversation. Certainly this is a question for future study.

Ensor and Hughes (2008) examined the notion of connectedness between conversational partners (i.e., does the conversation of one partner follow logically or sequentially from the other?), which they argue provides an “index” of the degree that conversational partners are in tune with each other. Conversational connectedness has been associated with false belief understanding (Dunn, 1993; Dunn & Cutting, 1999), indicating its importance in children’s early sociocognitive development. Although measuring the strength of associations between maternal and child language is not equivalent to this definition of connectedness, it does suggest that the degree of responsiveness between conversational partners regarding different kinds of internal state language is enhanced more in some contexts than others. A question for future study is whether connected conversation occurs more frequently in some contexts than others, especially when contexts vary in how explicitly or implicitly they elicit shared meanings about the nature of the interactions and discourse. Certainly our data provide initial suggestive evidence that it might, implying that certain interaction contexts might be especially conducive to the development of children’s social understanding. In sum, it may be beneficial to provide children with a range of opportunities and contexts in which to use internal state language.
We also examined the strength of the associations of mother-child talk within the four contexts. During the picture task, the associations of mother-child talk about cognitions and goals were more strongly correlated than talk about preferences. Given the nature of the task, these findings suggest that some mothers may have been using the situation as a context for enhancing children’s knowledge by encouraging collaborative discussions (e.g., think, need). During the negative home context, family discourse about goals was more strongly related than for emotions. Again, the nature of negative or conflictual interaction (characterized by mutual opposition of goals) suggests mother-child discourse is likely to focus on differing wants or needs of the participants. The weaker strength of the association for emotions might occur because when mothers talk about emotions, children are not very responsive as they may have difficulty managing emotional discourse in the heat of the moment during negative exchanges. Alternatively, mothers may be less responsive to children’s emotion talk in conflict situations. In any case, a more detailed study of the connectedness between maternal-child emotional state language during negative interactions is warranted. Finally, during the positive home context, mother-child talk about goals was more strongly associated than discussion of emotions and preferences, as well as cognitions, again suggesting that in this context, participants were most responsive to each other in their discourse surrounding wants and needs.

Mothers might be responding to child behavior and employ different types of internal state language in particular contexts in response to their child’s ability to understand the context (e.g., during conflict, children may be likely to employ language regarding goals and mothers may respond appropriately). Recchia and Howe (2008) argued that the meaning of internal state discourse may vary depending on the positive or negative affective context in which the conversation is embedded, indicating the importance of considering the properties of contexts. Future research employing a sequential analysis of the patterns of discourse in different contexts might clarify the nature of bidirectional exchanges between mothers and their children.

In sum, our study has illuminated the role of contexts for mother-child discourse about different types of internal states. The findings raise a key methodological issue to be considered in interpreting other studies; namely, the specific context in which internal state discourse is observed may have an influence on the type of language that is recorded. Thus, our findings extend the literature focusing exclusively on mother-child discourse in more restricted contexts such as book reading or reminiscing about past events (e.g., Laible & Song, 2006; Symons et al., 2005). These
findings have implications for how children learn to manage relationship
dynamics within the different contexts of social interactions (Carpendale
& Lewis, 2004).

Conclusions
From a social development perspective, parents often use daily conversa-
tions to coach and promote emotional and cognitive skills and awareness
in their preschoolers (Bronson, 2000). Training may facilitate parents’
sensitivity to their children’s use of internal state language and their level
of social understanding in different contexts. Having parents and children
use effective communication to coconstruct an understanding of events
across contexts may have beneficial outcomes for all involved. For ex-
ample, if during potentially affectively intense contexts (e.g., conflict),
families have a repertoire of skills from which to select, they may be bet-
ter equipped to handle these situations in emotionally adaptive ways. In
conclusion, family conversations across different contexts are important
opportunities for both children and parents to develop shared understand-
ings of the psychological world, which can later be applied to other social
contexts.

References
Beeghly, M., Bretherton, I., & Mervis, C. (1986). Mothers’ internal state language
New York: Guilford.
The development of children’s social understanding within social interaction.
*Behavioral and Brain Sciences, 27,* 79–151.
child emotion talk: Age and gender differentiation. *Developmental Psychol-
ogy, 34,* 88–98.
tions of conversations about feelings between mother and preschooler. *British
de Rosnay, M., & Hughes, C. (2006). Conversation and theory of mind: Do chil-
dren talk their way to socio-cognitive understanding? *British Journal of De-
velopmental Psychology, 24,* 7–37.


## Appendix

**Definitions and Examples of Internal State Language and Context Coding**

### References to internal states

1. Emotions (e.g., happy, sad). Example: “You are making me angry.”
2. Cognitions (e.g., think, know). Example: “I know that you are frustrated.”
3. Goals (e.g., want, try, need). Example: “I want the book.”
4. Preferences (e.g., like, hate, favorite). Example: “I like cookies and bananas.”

### Affective contexts at home

1. Positive (i.e., positive emotional tone). Examples: play, teaching, soothing, helping.
2. Negative (i.e., negative emotional tone). Examples: conflict, punishing, reprimanding and disciplining for misbehavior.
3. Neutral (i.e., neutral emotional tone). Examples: affectively neutral conversation (e.g., about locations of objects, nonemotional events in distant past or future, and general knowledge).