THE ROLE OF PARENT-CHILD CONVERSATIONS AND ATTRIBUTIONAL
BIASES IN CHILDREN’S PROSOCIAL AND AGGRESSIVE BEHAVIORS

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS.........................................................................................ii

LIST OF FIGURES AND TABLES........................................................................iv

ABSTRACT...........................................................................................................v

CHAPTER

1. INTRODUCTION...............................................................................................1
   Emotion Content in Parent-Child Conversations and Children’s Social Behaviors......................................................2
   Parental Elaborative Conservation Style and Children’ Social Behaviors…..4
   Children’s Attributional Biases and Parents.............................................................6
   Children’s Attributional Biases and Social Behaviors............................................7
   The Current Study..............................................................................................9
   Hypotheses........................................................................................................11

2. METHODS......................................................................................................12
   Participants.........................................................................................................12
   Procedure.........................................................................................................12
   Measures.........................................................................................................13

3. RESULTS......................................................................................................16
   Preliminary Analyses.......................................................................................16
   Main Analyses................................................................................................17

4. DISCUSSION..................................................................................................20

REFERENCES....................................................................................................28
LIST OF FIGURES AND TABLES

FIGURE

1. Conceptual Model ................................................................. 35
2. Interaction between Maternal Elaborations and Child Gender Predicting Prosocial Tendencies ................................................................. 39

TABLE

1. Descriptives and Correlation Matrix ........................................ 36
2. Hierarchical Regressions Predicting Prosocial Tendencies from Maternal Elaborations and Attributional Bias ................................................................. 37
3. Hierarchical Regressions Predicting Prosocial Tendencies from Maternal Positive Emotion Content and Attributional Bias ................................................................. 38
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Abstract

The aims of the present study were to examine the relations between two dimensions of parent-child conversations and children’s social behaviors and to assess the mediating role of children’s attributional biases in these relations. 60 preschoolers (mean age = 4.92) and their mothers engaged in conversations about a recent time in which the child felt sad, mad, scared, and happy. Conversations were coded for maternal elaborations and maternal positive emotion content. Children also completed a storytelling task with researchers that assessed their positive and negative attributional biases. Children’s prosocial tendencies and aggressive behaviors were assessed through teacher report.

A series of hierarchical multiple regressions were conducted. Results indicated that maternal elaborations marginally positively predicted children’s prosocial tendencies. Children’s positive attributional biases significantly positively predicted children’s prosocial tendencies. However, attributional biases did not significantly mediate the relation between maternal elaborations and prosocial tendencies. Additionally, maternal discourse variables and children’s attributional biases did not predict children’s aggressive behaviors. Discussion will focus on the significance of both maternal discourse style and children’s positive cognitions in fostering more prosocial tendencies towards peers in preschool aged children.
Chapter 1: Introduction

Through a variety of mechanisms, including parenting style, discipline practices, and parent-child conversations, parents affect children’s moral development (Eisenberg & Murphy, 1995; Laible, 2004a). Of particular interest is the role parents have in children’s prosocial behaviors (behaviors intended to benefit others; Carlo & Randall, 2002) and aggressive behaviors (behaviors intended to harm others; Nelson, Mitchell, & Yang, 2008). Because parent-child conversations are frequent in early childhood, they might have a salient role in predicting prosocial and aggressive behaviors. Although parent-child conversations have been conceptually linked to prosocial and aggressive behaviors, direct empirical research on these links is sparse. Furthermore, little is known about the mechanisms through which parent-child conversations might influence such behaviors. One possible mechanism is attributional biases, defined as the intent children ascribe to others’ behaviors (Dodge, 2006). The goal of the current study is to examine how dimensions of parent-child conversations affect children’s prosocial and aggressive behaviors through children’s attributional biases.

Researchers often explore two dimensions of parent-child emotion conversations: parental conversation content and conversation style (Fivush, Berlin, Sales, Mennuti-Washburn, & Cassidy, 2003). Researchers that focus on parent-child conversation content may pay particular attention to the number of positive and negative emotion words discussed (Fivush & Vasudeva, 2002). Analysis of parental conversation style, including parental elaborations, focuses on the method by which parents introduce and discuss information and largely ignores the specific content that is being discussed (Fivush et al., 2003). These approaches reflect important dimensions of parent-child
EMOTION CONVERSATIONS AND CHILDREN’S BEHAVIORS

conversations and each aspect may be uniquely linked to children’s prosocial and aggressive behaviors and merits further investigation.

**Emotion Content in Parent-Child Conversations and Children’s Social Behaviors**

Researchers have found that parent-child dyads often spontaneously incorporate direct references to emotions into unstructured conversations. The prevalence of emotion terms in parent-child conversations is apparent in numerous studies in which researchers direct parents to have a conversation with their children about specific topics, without providing instructions to incorporate emotions (e.g., storytelling, misbehavior, recent family events; Garner, Dunsmore, & Southam-Gerrow, 2008; Laible, 2004a, 2004b; Reese & Fivush, 1993). For example, Cervantes and Callanan (1998) instructed mothers and their two-, three-, and four- year-old children to create stories together. While participants were not instructed to incorporate any emotion terms into these stories, most mothers and children made direct references to emotions. It appears as though both parents and children are spontaneously driven to discuss emotions.

Parent-child conversations regarding emotions serve a variety of functions. From a cognitive perspective, there is evidence that conversations about past events have a significant impact on children’s memories of events and affect how they retell these events to others (Fivush & Vasudeva, 2002). Parents also rely on these conversations about past events and emotions as a form of bonding and means of fostering emotional competence (Fivush & Vasudeva, 2002). Additionally, Dunn, Brown, and Beardsall (1991a) argue that children use these conversations as an opportunity to reflect upon emotionally salient events. With distance, and with the help of their more emotionally competent parent, children may gain a greater understanding of the emotional event.
Although evidence that the content of parent-child conversations directly affects children’s social behaviors is limited, Laible and colleagues have demonstrated associations between the inclusion of positive and negative emotions in parent-child conversations and children’s aggressive and prosocial behaviors (Laible, 2004a; Laible & Song, 2006). Laible and Song (2006) found that mother-child dyads that included more negative emotions terms (e.g., anger, sadness) in conversations had children that engaged in fewer aggressive behaviors. This direct association suggests that through emotion content, parents enhance children’s positive orientation towards others, leading to fewer aggressive behaviors. Additionally, through emotion content, parents might also directly enhance children’s socially competent behaviors. In one of the few studies on this topic, mother-child talk about positive emotions (e.g., happiness, pride) during discussions of past behaviors was positively associated with children’s prosocial behaviors (Laible, 2004a), indicating a direct association between positive emotion content in conversations and children’s positive behaviors.

Parents’ inclusion of positive emotion terms, rather than negative emotion terms, might be particularly important in the associations between parent-child conversations and children’s behavioral outcomes. Specifically, by including more positive emotion terms, particularly in conversations about negative emotions or events, parents might foster children’s positive conception of others. According to Social Information Processing theorists (Crick & Dodge, 1994), children’s processing of events can be influenced by parents’ beliefs and practices, including parental expectations and responses to transgressions. Conceptually, there is also reason to believe that how parents discuss emotions with their children may have an effect on how their children process
future events. Parents that consistently reframe negative events and emotions, through the inclusion of positive emotion content (e.g., times when the child was happy, smiling, laughing, proud), may have children that encode and interpret negative events more positively. This benign attributional bias may translate to more prosocial behaviors and fewer aggressive behaviors in children (Nelson & Crick, 1999)

Parental Elaborative Conservation Style and Children’s Social Behaviors

It is not just the presence of parent-child conversations that is important, but the specific narrative style parents are employing. Elaborative conversations are characterized by detailed descriptions of events and questions that probe for greater involvement of the child and provide opportunities to enrich children’s event memory (Reese, Haden, & Fivush, 1993). Although empirical support for the direct relations between parental elaborations and children prosocial and aggressive behaviors is lacking, these constructs are linked conceptually.

According to Reese and colleagues, an elaborative parental discourse style encourages children’s reflection and may help children gain a greater understanding of emotionally salient events (Reese & Fivush, 1993; Reese, Haden, & Fivush, 1993). Moreover, researchers have theorized that a detailed understanding of past events may contribute to children’s sociocognitive development, including emotion understanding (Laible, 2004b, Laible & Song, 2006) and theory of mind (i.e., the ability to understand the mental state of oneself and others; Ontai & Thompson, 2008). Specifically, parental elaborations, evident by the use of questions and attempts to elicit more thoughtful information from children, might direct children toward a greater understanding of their own emotions and a greater understanding of the emotions of others. As such, the use of
elaborations in parent-child emotion conversations may help to promote children’s sociocognitive skills (e.g., emotion understanding and perspective taking), skills that have previously been associated with more prosocial behaviors (Iannotti, 1985; Knight, Johnson, Carlo, & Eisenberg, 1994; Laible, 2004a) and fewer aggressive behaviors (Denham et al., 2002).

Although parent-child conversations and elaborative style have not been directly empirically linked to children’s prosocial and aggressive behaviors, several other dimensions of parenting are consistently associated with these behaviors. Parents who employ positive inductions, a discipline technique in which the parent discusses the implications of their children’s transgression for others, have children and adolescents who are more morally advanced and prosocial and may also serve to discourage aggressive behaviors (Carlo, Knight, McGinley, & Hayes, 2011; Grusec and Goodnow 1994; Hoffman, 2000; Kerr, Lopez, Olson, & Sameroff, 2004). As inductions are characterized by elaborative parent-child conversations, it is likely that the elaborative dimension of parent-child conversations are linked to children’s behaviors in a similar manner. Similarly, parents who are warm and supportive, which is likely manifested in elaborative emotion conversations, often have children who are more prosocial (see Carlo, 2006 for a review).

The current study will explore the role of parent-child conversations in children’s prosocial and aggressive behaviors, a relation that is infrequently examined in empirical research. Additionally, much of the research examining children’s prosocial and aggressive behaviors examines older children and adolescents. The current study will contribute to the literature by examining these relations in a sample of preschool aged
children. Moreover, the sparse research on the relations between parent-child conversations and children’s social behaviors is exacerbated by a lack of research examining possible mediating mechanisms that might explain those relations.

The current study will also examine the mediating role of children’s positive and negative attributional biases in the relation between parent-child conversations and children’s prosocial and aggressive behaviors. There is evidence that children’s sociocognitive processes, including emotion understanding (Dunn et al., 1991a) and theory of mind (Ontai & Thompson, 2008) are related to parent-child conversations and children’s behaviors. However, researchers have not examined attributional biases in the relations between parent-child conversations and children’s prosocial and aggressive behaviors. Therefore, there is value in understanding the role of this cognitive bias in the relations between parent-child conversations and children’s behaviors.

**The Role of Attributional Biases in the Relations Between Parent-Child Conversations and Children’s Social Behaviors**

**Children’s Attributional Biases and Parents**

Social Information Processing theorists assert that children’s attributional biases form as a result of parental socialization experiences (Crick & Dodge, 1994), including parent-child conversations. However, there are no known studies examining links between any dimensions of parent-child emotion conversations and children’s positive or negative attributional biases. Based on the social learning perspective, parents might model their own attributional biases to children. Therefore, researchers expect parents and their children to hold similar cognitive biases. In one study, researchers found that although parents were less likely than children to make hostile attributions, maternal
social cognitions were associated with children’s intent attributions (Nelson et al., 2008). These findings suggest that mothers might be transmitting attributional biases to their children. Similarly, in a sample of clinically aggressive and non-aggressive children and their mothers, researchers found that mothers’ attributional biases were significantly correlated with the attributions of their daughters (MacBrayer, Milich, & Hundley, 2003). These findings provide suggestive evidence that parents play a role in socializing children’s attributional biases.

Researchers have also identified parenting practices as important predictors of children’s attributional biases. In one study that examined children’s positive attribution biases, Nelson and Coyne (2009) found that children’s intent attributions were significantly related to paternal warmth and control. Specifically, when fathers were more warm and responsive, children made more positive attributions in response to ambiguous vignettes. Contrastingly, when fathers used higher levels of psychological control with boys, and higher levels of corporal punishment with girls, children tended to make more hostile attributions (Nelson & Coyne, 2009). Based on these findings, there is evidence that the way in which parents interact with their children has an impact on the development of children’s positive and negative cognitive biases. Potential links between parent-child conversations and these biases, however, have not been examined (Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991b; Eisenberg & Murphy, 1995; Janssens & Dekovic, 1997; Krevans & Gibbs, 1996).

**Children’s Attributional Biases and Social Behaviors**

Children’s positive and negative attributional biases have important implications for their social behaviors. Most commonly, researchers have detailed the associations
between children’s hostile attribution biases and their aggressive behaviors (Burks, Laird, Dodge, Pettit, & Bates, 1999; Dodge & Coie, 1987; Dodge & Frame, 1982; Katsurada & Sugawara, 1998; Nelson & Crick, 1999; Nelson et al., 2008, Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002). According to these researchers, social stimuli might be cues for aggressive responses when the child attributes hostile intent to the individuals involved in an ambiguous situation. As a result, children with more hostile attribution biases are predisposed toward aggressive responses (Dodge & Frame, 1982).

While numerous researchers have examined the associations between attributional biases and aggression in middle childhood and early adolescence (Burks et al., 1999; Nelson et al., 2008), Katsurada and Sugawara (1998) have found support for these processes in preschool aged children as well. Specifically, children’s hostile attributions predicted their teacher-rated aggression. Young children with hostile biases have a tendency to interpret their peers’ ambiguous events as purposefully hostile and respond aggressively. This study suggests that there might be value in examining attributional biases in preschool aged children, especially as there are no known studies that examine the influence of positive biases in preschool aged children (Katsurada & Sugawara, 1998).

There is limited research on children’s positive attributions and relations to positive social outcomes. Nelson and Crick (1999) suggest that prosocial children might be driven by a benign attributional bias. Children with benign attributional biases are more likely to give others the “benefit of the doubt” following an ambiguous scenario (Nelson & Crick, 1999, p. 19). For example, when told that a peer had taken their seat, peers with benign attributional biases are more likely to believe that this behavior was
unintentional or accidental. Researchers have found that peer rated, prosocial children were more likely to attribute benign intent to ambiguous scenarios. Furthermore, when provided with a set of responses and goals to the ambiguous scenarios, prosocial children responded negatively to the use of aggressive strategies (Nelson & Crick, 1999). This positive, social cognitive bias may foster a more positive and prosocial view of others, as well as discourage aggressive tendencies. There is also evidence that the relations between benign attributional biases and children’s prosocial behaviors may persist over time. Laible and colleagues (under review) have found that children’s benign attributions positively predict prosocial behaviors two years later. However, as researchers predominately study hostile attributional biases, little is known about the formation of and outcomes associated with positive attributional biases.

The Current Study

Based on the reviewed literature, there is evidence that parent-child conversations affect children’s sociocognitive skills (Denham, Zoller, & Couchoud, 1994; Dunn et al., 1991a). Additionally, numerous researchers have documented significant associations between children’s attributional biases and behavioral outcomes (e.g., Nelson & Crick, 1999). However, these constructs have not been examined simultaneously. Parental elaborations and positive emotion content in parent-child conversations may enhance children’s positive orientations towards others, resulting in positive attributional biases, which might be differentially related to children’s prosocial and aggressive behaviors. The current study will consider the mediating role of attributional biases in the relations between parent-child conversations and children’s social behaviors.
EMOTION CONVERSATIONS AND CHILDREN’S BEHAVIORS

The current study will account for the gaps in previous research in several ways. First, there are differences in the topics researchers have instructed dyads to discuss including: misbehavior (Laible, 2004b), good behavior (Laible, 2004b), past events (Ontai & Thompson, 2002), and storytelling (Cervantes & Callanan, 1998; Garner et al., 2008; Laible, 2004a). This is particularly concerning when researchers use similar emotion coding schemes and yet conversation topics may elicit different responses from participants. For example, Laible’s (2004b) use of misbehavior and good behavior likely elicits moral themes, including more moral emotions. Directing dyads to discuss four different emotions, as was done in the present study, might be a more efficient and consistent means of eliciting emotions in parent-child conversations.

Second, few studies focus on the development of children’s positive attributional biases and associated outcomes. Instead, researchers tend to explore the development of negative outcomes, such as aggression, associated with children’s hostile attributions (e.g., Dodge & Frame, 1982). Researchers should consider the development of children’s positive cognitive biases and their relations to positive behaviors, including prosocial behaviors. To overcome this limitation, the current study will examine both positive and negative attributional biases. Positive attributional biases reflect children’s tendencies to hold positive perceptions of their peers following an interaction. Contrastingly, children with negative attributional biases may perceive their friends more negatively following an interaction.

Third, previous research has indicated that girls are often rated higher in prosocial behaviors than boys and boys are rated higher in physically aggressive behaviors than girls (Denham, McKinley, Couchoud, & Holt, 1990; Katsurada & Sugawara, 1998).
EMOTION CONVERSATIONS AND CHILDREN’S BEHAVIORS

Similarly, during conversations, parents are often more expressive and elaborative with girls than boys (Dunn, Bretherton, & Munn, 1987; Reese & Fivush, 1993). Therefore, the current study will also explore current gender differences in the theorized model.

Hypotheses

The current study will examine the direct and indirect effects of aspects of parent-child emotion conversations on children’s prosocial and aggressive behaviors (see Figure 1 for Conceptual Model). The following hypotheses were examined:

1. Maternal elaborations will be positively associated with children’s positive attributional biases.

2. Maternal positive emotion content will be positively associated with children’s positive attributional biases.

3. Children’s positive attributional biases will be positively associated with prosocial behaviors and negatively associated with aggressive behaviors.

4. Children’s negative attributional biases will be negatively associated with prosocial behaviors and positively associated with aggressive behaviors.

5. Maternal elaborations will be positively associated with children’s prosocial behaviors and negatively associated with aggressive behaviors.

6. Maternal positive emotion content will be positively associated with children’s prosocial behaviors and negatively associated with aggressive behaviors.

7. The effect of parent-child conversations on children’s outcomes will be mediated by children’s cognitive biases. Specifically, higher levels of maternal elaborations and positive emotion content in conversations will be positively associated with
children’s positive attributional biases which, in turn, will be positively associated with prosocial behaviors and negatively associated with aggressive behaviors.

8. The proposed study will also explore whether relations among the variables differ based on the gender of the child.

Chapter 2: Methods

Participants

The current study is a secondary analysis project using data from the Self Concept and Emotion Regulation (SCER) project. The participants included 64 preschoolers. Participants were recruited from preschools in the Northwest region of the United States. Three mother-child dyads completed the conversation task in a non-English language and one dyad failed to discuss any past events during the task. Therefore, these participants were excluded from the current analysis. The final sample includes 60 preschoolers, ranging from 4 to 6 years old ($M_{age} = 4.92$, $SD = .59$, 45% female) and their mothers. The sample is comprised largely of well-educated (69% of mothers with Bachelor’s degree or higher) European Americans (88%).

Procedure

After obtaining IRB approval, parents and their children were recruited from local preschools. The present study was part of a larger study that entailed two separate sessions, one at the participant’s home and on the university campus. Only data from the home session is used in the present study. At the home session, the mother and her child first participated in the conversation task. There was no time limit to their conversation. Following the conversations, separate parent and child interviews were conducted, during which the child completed the attribution task. Teachers completed the measure of
prosocial and aggressive behaviors. Parents were compensated 15 dollars for participating and children were given a small toy. Teachers were not compensated for their participation.

**Measures**

**Conversations.** The mother-child emotion conversations were based on a procedure developed by Reese and Fivush (1993) in which mothers were instructed to discuss recent times in which the child felt sad, scared, mad, and happy. Dyads were allowed to select the amount of time spent on each emotion. Each conversation was recorded and transcribed verbatim.

**Maternal Elaborations.** The elaborativeness coding was adapted from Laible (2004a) in which mothers are assigned a global elaborativeness rating. Each conversation received a rating on a 5-point scale (1= low elaborativeness, 5=high elaborativeness). Ratings were based on the descriptions, details, and the quality of the questions the mothers engaged in. Questions were coded as elaborative if they prompted the child to provide new information (e.g., “Tell me about…” “What did we do?”). Repetitive questions, questions that repeated the same content from an earlier point in the conversation (e.g., “Who was there?” followed by “Do you remember who was there?”) were not coded as elaborations. Mothers were assigned an elaborativeness rating for each separate emotion conversation (sad, scared, mad, happy). Due to correlations in ratings across emotions and procedures established in previous research (Laible, 2004b), scores were averaged across all emotions to create a global elaborativeness rating.

**Maternal Positive Emotion Content.** Based on a procedure previously completed by Reese and Fivush (1993), researchers also coded the number of maternal
positive emotion terms. Both terms that reflected an internal emotional state (e.g., happy, proud) and terms that reflected emotional behaviors (e.g., laughed, smiled) were coded. Although researchers coded positive emotion terms and negative emotions terms (e.g., sad, scared, cried), only positive emotion terms are of interest in this study.

Prior to coding the conversation transcripts from the current study, coders were trained using practice transcripts. For maternal positive emotion content, two independent coders initially coded 25% of the transcripts and inter-rater reliability was calculated separately for each conversation topic. Kappa values ranged from 0.77 to 0.92. Any disagreements among coders were resolved through discussion. Following this, a single coder coded the remaining transcripts. For the maternal elaborations coding, two independent coders coded 25% of the transcripts following which reliability was assessed through correlations. Coders had a correlation of 0.73. After this reliability check, each of the coders was responsible for independently coding half of the remaining transcripts.

Attributional Bias. The measure of children’s attributional bias was adapted from a measure of children’s trait inferences developed for this study. Mothers were first asked for the name of their child’s best friend. Following this, children were asked to select two small dolls, representing themselves and their best friend and were told they would be assisting the researcher in telling stories about themselves and their friend. The researcher proceeded to describe eight common positive and negative events (e.g., having a fight, playing well together) in which the cause of the event was attributed to the child or the friend. Children were then asked a series of follow up questions. Four events, two in which there was a positive outcome and two a negative outcome, were initially
selected for this study. For all four events, the cause of the event was attributed to the friend (see Appendix A for examples).

Initially, positive attributional biases were assessed through children’s responses to the positive stories. However, as the majority of children (88%) responded positively to these events, there was limited variability in this measure. Therefore, children’s responses to the two negative outcome events were used to assess both positive and negative attributional bias. Conceptually, this is likely a stronger measure of positive attributional bias. Children’s ability to assert that a friend has positive attributes, despite a negative peer interaction, might be more indicative of a positive attributional bias than the ability to assert that a friend has positive attributes following a positive event or interaction.

Following each story, children were asked two questions; “Does that make them a bad friend or a good friend?” and “Does this make them nice or not nice?” For each question, children were assigned a score of zero if they selected the negative response (i.e., bad friend or not nice) or a score of one if they selected the positive response (i.e., good friend or nice). Responses were then summed, with a possible range of zero to four. Lower values indicated a more hostile, negative attributional bias and higher values indicated a more positive attributional bias.

Importantly, the cognitive biases examined in the current study are distinct from benign and hostile attributional biases conceptualized by previous researchers (Nelson & Crick, 1999). In previous studies, researchers have examined children’s responses to ambiguous situations (e.g., being spilled on). The current methodology uses scenarios that reflect distinctly negative (i.e., having a fight) peer interactions. Furthermore,
children were not asked to ascribe intent to these interactions. Rather, children were asked about their perceptions of their peer following these negative interactions.

**Aggressive Behaviors.** Children’s preschool teachers were administered the short form of Social Competence and Behavior Evaluation-Preschool Edition (SCBE) developed by LaFreniere and Dumas (1996). Teachers used a 6-point scale (1 = *almost never occurs*, 6 = *almost always occurs*) to rate children on 30 items. This study utilizes the original 10-item anger-aggression subscale (alpha = .92) to assess children’s aggressive behaviors. Sample items include: “Gets angry when interrupted; Hits, bites or kicks other children.”

**Prosocial Tendencies.** Children’s prosocial tendencies were also assessed through the SCBE. Using a through 6-point scale (1 = *almost never occurs*, 6 = *almost always occurs*) teachers rated children on 9 items (one item dropped from original scale due to low inter-item correlations; alpha = .91). Sample items include: “Shares toys with other children; Comforts or assists another child in difficulty.” This scale reflects prosocial tendencies, rather than prosocial behaviors, as several items do not reflect behaviors (e.g., “*Takes other children and their point of view into account*”)

**Chapter 3: Results**

**Preliminary Analyses**

Bivariate relationships between the main study variables are presented in Table 1. Maternal positive emotion content was positively associated with maternal elaborations suggesting that mothers who use more positive emotion words during conversations with their children are also more elaborative during these conversations. Maternal elaborations were positively associated with children’s prosocial tendencies, such that mothers who
used more elaborations during past conversations had children with greater prosocial tendencies. Children’s attributional biases were positively associated with prosocial tendencies as well, suggesting that more positive attributional biases were associated with greater prosocial tendencies. Finally, children’s aggressive behaviors and prosocial tendencies were strongly and negatively associated.

**Main Analyses**

A series of t-tests were conducted to examine gender differences in maternal discourse variables, children’s attributional biases, and children’s prosocial and aggressive outcomes. No significant gender differences were found among any of the study variables. Additionally, child mean length utterance (a proxy for how verbal the child is) was initially included as a control in the regression analysis, however, this variable was not significant in any step of the model and was excluded from the final analysis.

A series of hierarchical regressions were run to predict children’s prosocial tendencies and aggressive behaviors. Regressions were run separately for children’s prosocial tendencies and aggressive behaviors and separately for maternal elaborations and maternal positive emotion content. The final model included four steps. In the first step, maternal education and child gender were entered as control variables. In the second step, maternal discourse variables were entered. In the third step, children’s attributional bias was entered. In the fourth step, the 2-way interaction between maternal discourse variables and child gender was entered. Variables were centered before being entered into regression equations and follow up tests were conducted using procedures established by Aiken and West (1991).
**Prosocial Tendencies.** In the model predicting prosocial tendencies from maternal elaborations, the first step of the model was not significant (adjusted $R^2 = .08$, $F(2, 46) = 2.03, p > .05$). The second step was marginally significant (adjusted $R^2 = .15$, $F(3, 45) = 4.06, p = .06$), with more maternal elaborations predicting children’s prosocial tendencies at the trend level. The third step of the model significant (adjusted $R^2 = .28$, $F(4, 44) = 4.36, p < .01$). With the inclusion of attributional biases in the model, maternal elaborations was no longer a marginally significant predictor of children’s prosocial tendencies. Attributional biases, however, was a significant positive predictor, with more positive attributional biases predicting children’s prosocial tendencies.

Although these results suggest mediation, bootstrapping analysis revealed that the 95% bias-corrected confidence interval for the size of the indirect effect included zero (−.02, .21), which suggested a non-significant indirect effect (Preacher & Hayes, 2004). The final step of the model including the 2-way interaction between maternal elaboration and child gender was also significant (adjusted $R^2 = .34$, $F(5, 43) = 3.15, p < .01$). In this step, attributional biases positively predicted children’s prosocial tendencies.

Additionally, maternal elaborations and the two-way Maternal Elaboration by Gender interaction positively predicted children’s prosocial tendencies at the trend level. Follow-up analyses revealed that there was a stronger association between maternal elaborations and prosocial tendencies for girls ($t (26) = 2.70, p < .01$) compared to boys ($t (28) = .91, p > .05$; see Figure 1). Results are presented in Table 2.

In the model predicting prosocial tendencies from maternal positive emotion content, the first step of the model was not significant (adjusted $R^2 = .04$, $F(2, 46) = 2.03, p > .05$). The second step was also not significant (adjusted $R^2 = .03$, $F(3, 45) = 1.48, p >
EMOTION CONVERSATIONS AND CHILDREN’S BEHAVIORS

.05). The third step was significant (adjusted $R^2 = .18$, $F(4, 44) = 3.67, p < .05$). In this step, higher maternal education and more positive attributional bias predicted children’s prosocial tendencies. The final step was also significant (adjusted $R^2 = .16$, $F(5, 43) = 2.89, p < .05$), however, only maternal education and attributional biases were significant positive predictors of children’s prosocial tendencies. Results are presented in Table 3. Although several steps of this model were significant, maternal positive emotion content was not a significant predictor of children’s prosocial tendencies at any step.

Due to the non-significant associations between maternal positive emotion content and children’s prosocial tendencies, additional analyses were conducted to assess whether total maternal emotion content, regardless of valence, would be a significant predictor of children’s outcomes. Total maternal emotion content was not a better predictor than positive emotion content and therefore, results from this analysis are not presented.

**Aggressive Behaviors.** In the model predicting aggressive behaviors from maternal elaborations, all four steps of the model were significant (first step: adjusted $R^2 = .15$, $F(2, 46) = 5.07, p < .01$; second step: adjusted $R^2 = .15$, $F(3, 45) = 3.78, p < .05$; third step: adjusted $R^2 = .13$, $F(4, 44) = 2.79, p < .05$; fourth step: adjusted $R^2 = .15$, $F(5, 43) = 2.75, p < .05$). However, maternal education was the only significant predictor of children’s aggressive behaviors in each step, such that lower maternal education predicted more aggressive behaviors.

A similar pattern of findings emerged in the model predicting aggressive behaviors from maternal positive emotion content. The first two steps of the model were significant (first step: adjusted $R^2 = .15$, $F(2, 46) = 5.07, p < .01$; second step: adjusted $R^2$
EMOTION CONVERSATIONS AND CHILDREN’S BEHAVIORS

\[ R^2 = .13, F(3, 45) = 3.35, p < .05; \] third step: adjusted \( R^2 = .11, F(4, 44) = 2.46, p > .05 \); fourth step: adjusted \( R^2 = .10, F(5, 43) = 2.09, p > .05 \). In each step, maternal education was the only significant predictor of children’s aggressive behavior, such that lower maternal education predicted more aggressive behaviors.

**Chapter 4: Discussion**

This study provides partial support for considering aspects of parent-child conversations and children’s attributional biases in fostering preschool children’s prosocial tendencies. As expected, children whose mothers employed a more elaborative discourse style had greater prosocial tendencies, although this finding was only marginally significant (\( p = .06 \)). Contrary to hypotheses, however, only one dimension of maternal discourse (maternal elaborations, but not maternal positive emotion content) significantly predicted children’s prosocial tendencies. Additionally, children with more positive attributional biases demonstrated greater prosocial tendencies, although attributional biases did not mediate the relations between maternal elaborations and children’s social behaviors, as was originally hypothesized. Finally, neither maternal discourse variables nor children’s attributional biases significantly predicted children’s aggressive behaviors, rather, maternal education emerged as a consistent and significant predictor of children’s aggressive behaviors and prosocial tendencies.

The current findings suggest that maternal elaborations may serve as an important dimension in understanding the effect of parent-child conversations on children’s cognitive and behavioral outcomes. As expected, maternal elaborations predicted children’s prosocial tendencies, although this association was marginally significant. Researchers have previously demonstrated that parental elaborations are associated with
greater emotion understanding (Laible, 2004a; Laible, 2004b) and greater well-being following a conflict (Fivush & Sales, 2006), and while parental elaborations and children’s prosocial behaviors conceptually linked, researchers have not been able to demonstrate empirical support for this association. Therefore this study contributes to the literature in providing some suggestive support that mothers’ use of an elaborative discourse style may be directly related to children’s more prosocial tendencies toward others. Through elaborations, mothers may help guide children toward creating a more detailed understanding of past emotionally salient events, which may facilitate children’s understanding of their own and other’s emotions and perspectives. Through these more advanced sociocognitive skills, children might be more inclined to act prosocially towards their peers.

Caution should be used in interpreting the current finding, given the lack of previous direct empirical support linking maternal elaborations to children’s behaviors and the trend-level statistical associations. It is possible, for example, that the relationship between maternal elaborations and children’s prosocial and aggressive behaviors is spurious, such that these constructs are related due to the influence of other parenting behaviors. Parents who are warm and supportive might be more inclined to have elaborative conversations with their children. Similarly, researchers have demonstrated that parental warmth and support are associated with more prosocial behaviors (Carlo, 2006; Janssens & Dekovic, 1997) and fewer aggressive behaviors (Zhou et al., 2002) in children. As such, the relations between parent-child conversations and children’s social behaviors may be a product of parenting behaviors or parenting style.
EMOTION CONVERSATIONS AND CHILDREN’S BEHAVIORS

Children’s positive attributional biases also emerged as a significant predictor of their prosocial tendencies. As children make more positive judgments of their peers, they may be more likely to act prosocially towards others. Children who have positive attributional biases may view their peers in a more sensitive and caring manner and are therefore motivated to engage in more prosocial behaviors. It is possible that this relation is reciprocal. As children with positive attributional biases engage in more prosocial behaviors, they may have more positive peer interactions. These interactions may reinforce their positive beliefs about their peers, thereby reinforcing their initial positive attributional bias. This notion is reflected in the literature on hostile attributional biases and aggression such that children with hostile biases come to expect aggression from others, and may engage in aggressive acts in a retaliatory nature. This then may create negative peer interactions, thereby reinforcing their negative biases regarding others (Dodge & Frame, 1982). The research on attributional biases has been predominately focused on hostile attributions and aggressive behaviors; this study suggests that positive attributional biases also play an important role in behavioral outcomes.

Previous research has demonstrated significant gender differences in parent-child conversations, such that mothers are typically more elaborative with their daughters than with their sons (Reese & Fivush, 1993). In this study, child gender moderated the relation between maternal elaborations and children’s prosocial tendencies at the trend level. Specifically, girls with highly elaborative mothers demonstrated greater prosocial tendencies than boys with highly elaborative mothers. Based on these findings, it appears that as mothers’ increased reliance on an elaborative discourse style is more beneficial for girls’ positive outcomes than for boys. These findings are consistent with previous
research that has demonstrated the gendered nature of parent-child conversations (Reese & Fivush, 1993). Although the interaction was only significant at the trend level, this is likely due to the small sample size used in the current study, as the beta weight associated with this predictor was substantial (refer to Table 2). Future researchers should attempt to replicate this interaction effect in larger samples.

Contradictory to the hypotheses, children’s attributional bias did not significantly mediate the relation between maternal elaborations and prosocial tendencies. Previous research has demonstrated the importance of parents in fostering children’s attributional biases (Nelson & Coyne, 2009), however, this research has not yet been extended to parent-child conversations. Surprisingly, maternal discourse variables, both elaborations and positive emotion content, were not significantly correlated with children’s attributional biases, suggesting that these variables were not related in the current sample in the hypothesized manner. Furthermore, it is possible that the model did not capture the complex relations between maternal discourse variables and attributional bias. For example, mother-child conversations may serve to foster perspective taking in children, which may in turn promote more positive attributional biases.

It was hypothesized that both maternal elaborations and maternal positive emotion content in parent-child conversations would operate similarly in on children’s outcomes. While maternal elaborations and positive emotion content were significantly positively correlated, the results from the regression analysis suggest that these dimensions of parent-child conversations are differentially related to children’s behavioral outcomes. Based on previous findings (Laible, 2004a), it was hypothesized that greater positive emotion content would be associated with children’s prosocial tendencies. However,
maternal positive emotion content was not a significant predictor of children’s prosocial tendencies or aggressive behaviors. Furthermore, this non-significant association between emotion content and children’s outcomes did not depend on the valence of the maternal emotion content, as both general and positive maternal emotion content was unrelated to children’s behavioral outcomes.

It was also hypothesized that mothers who included more emotion content in conversations, particularly positive content, might assist children in reframing negative events and this may lead to more positive behavioral outcomes. It is possible that the lack of significant relations for emotion content was due to sample size. Alternatively, it is possible that only a small fraction of mothers choose to reframe negative events, as evident by the low mean number of positive words. Contrastingly, some mothers might engage in greater discussion of the negative event and include more negative emotion terms, reflecting mother-child co-rumination (i.e., continued and extensive discussion of negative events; Rose, 2002), which has been associated with greater internalizing symptoms in children and adolescents in fifth-, eighth-, and eleventh-grade (Waller & Rose, 2010).

Numerous researchers have demonstrated the positive associations between parent-child conversations and children’s behavioral and cognitive outcomes (Fivush & Vasudeva, 2002; Laible, 2004a; Laible, 2004b; Ontai & Thompson, 2008). However, these associations are less clear in older children. Specifically, findings suggest that as fathers more richly discuss past events with their children in late childhood, children display higher levels of internalizing and externalizing behaviors (Fivush, Marin, McWilliams, & Bohanek, 2009). Therefore, parents’ discussion of past events might be a
form of co-rumination and would therefore be negative for children. Although the current
study explored relations among parent-child conversations and preschool aged children, it
is possible that early co-rumination in occurring. Fewer mothers might be reframing the
negative events discussed, which may help to explain why positive emotion content was
unrelated to children’s behavioral outcomes. With a larger sample size, researchers may
consider examining differences in co-rumination and positive reframing in parent-child
conversations.

In addition to examining children’s prosocial tendencies, children’s aggressive
behaviors were predicted from maternal discourse variables and children’s attributional
variables. Despite conceptual links between maternal discourse variables and children’s
aggressive behavior and extensive previous research linking children’s hostile
attributional biases to aggressive behaviors (e.g., Nelson et al., 2008), these associations
were not significant in the present study. This is likely due in part to the characteristics of
the sample. The children in this study were relatively low in teacher-reported aggression,
with a mean of 1.81 on a six-point scale, which likely impaired the ability to find
significant results. However, there does appear to be a strong association between
maternal education and children’s social behaviors in the present sample. Maternal
education significantly predicted children’s prosocial tendencies and aggressive
behaviors, and maternal education emerged as the only significant predictor of aggression
in all analyses. As scholars have previously discussed, it is likely that more educated
mothers, with higher socioeconomic status, can place their children in higher quality
child care and preschools, and these high quality setting are associated with fewer
problem behaviors in children (Peisner-Feinberg, Burchinal, Clifford, Cuklin, Howes,
EMOTION CONVERSATIONS AND CHILDREN’S BEHAVIORS

Kagan, & Yazejian, 2001). Moreover, in order to further explore these relations, and the hypothesized relations among dimensions of maternal discourse, attributional biases, and aggression, future studies of more diverse samples with a wider range of representativeness in aggressive tendencies is needed.

There are limitations of the current study that should be considered. First, this study is correlational and is not longitudinal or experimental. Therefore, neither causation nor direction of effects can be established and bidirectional effects should be considered. For example, it is possible that children that are more prosocial and less aggressive evoke more elaborative, positive discussions from their parent. Furthermore, as previously described, the relation between children’s positive attributional biases and prosocial tendencies is likely bidirectional or cyclical, similar to the manner described by Dodge and Frame (1982). Second, the current study includes a sample of almost exclusively middle-class European American mothers and children. Little is know about the role of parent-child conversations in other ethnic groups, and it is unclear as to whether these findings would replicate in a more diverse sample. Similarly, the mothers in the current study were highly educated, with almost 70% having at least a Bachelor’s degree. As maternal education was strongly associated with aggressive behaviors and prosocial tendencies in the current study, more research is needed on these associations in a more representative sample. Finally, this study only examined mother-child conversations. Previous research has demonstrated that fathers play a unique role in the effect of parent-child conversations on children’s behaviors (Fivush et al., 2009) and in the development of attributional biases (Nelson & Coyne, 2009). Therefore, researchers should consider
the differential effects of mothers and fathers in the relation between parent-child conversations, children’s cognitive biases, and children’s behavioral outcomes.

Despite these limitations, this study provides a greater understanding of the role of parent-child conversations in children’s positive and negative outcomes. This study suggests that both greater maternal elaborations and children’s positive attributional biases are associated with greater prosocial tendencies in young children. Moreover, the present findings propose that these relations are moderated by gender such that the positive effects of maternal elaborations on children’s prosocial behaviors might be more pronounced for girls than boys. The present study extends previous research on parent-child emotion conversations and provides evidence that aspects of these conversations may affect how children interpret others’ actions and in turn how they interact with others.
EMOTION CONVERSATIONS AND CHILDREN’S BEHAVIORS

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EMOTION CONVERSATIONS AND CHILDREN’S BEHAVIORS


EMOTION CONVERSATIONS AND CHILDREN’S BEHAVIORS


Laible, D., McGinley, M. M., Carlo, G., Panfile, T. & Augustine, M. (under review). Does engaging in prosocial behavior make you see the world through rose-colored glasses? The links between social information processing and prosocial/cooperative behavior. *Developmental Psychology.*


EMOTION CONVERSATIONS AND CHILDREN’S BEHAVIORS


EMOTION CONVERSATIONS AND CHILDREN’S BEHAVIORS


Figure 1: Conceptual model for the current study.
Table 1: *Descriptives and Correlation Matrix of Main Study Variables*

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Note. †p < .10, *p < .05, ‡p < .01; R² = Adjusted R²
Figure 2. Interaction between maternal elaborations and child gender predicting prosocial tendencies.