

ABSTRACT

Title of Thesis:

ATTACHMENT SECURITY AND CAREGIVING
SCRIPTS: LINKS TO PROSOCIAL
COMFORTING

David R. Martin, Master of Science, 2016

Thesis Directed By:

Professor of Psychology, Jude Cassidy, Department
of Psychology

Prosocial behavior is a key marker of healthy social development in children. Studies consistently find that attachment security is an important predictor of children's prosocial behavior. Studies investigating mechanisms that explain this relation are not necessary for understanding prosocial development. The goal of this study was to investigate a proposed mechanism, caregiving scripts, that might explain the relation between attachment security and prosocial comforting. A community sample of four-year old children ($n = 88$) completed a series of lab tasks assessing their attachment security, caregiving script knowledge, and response to an experimenter's distress. Results reveal that attachment security predicted children's comforting behavior and caregiving script knowledge. However, contrary to hypotheses, caregiving scripts did not mediate the relation between attachment security and prosocial comforting. These findings are partially consistent with previous results and suggest that further study is necessary to understand the function of the caregiving script.

ATTACHMENT SECURITY AND CAREGIVING SCRIPTS: LINKS TO PROSOCIAL
COMFORTING

By

David R. Martin

Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial
fulfillment of the requirements for the
degree of Master of Science

2016

Advisory Committee:

Professor Jude Cassidy, Chair

Professor Jonathan Beier

Professor Tracy Riggins

© Copyright by
David R. Martin
2016

Table of Contents

Table of Contents	ii
List of Tables	iii
List of Figures.....	iv
List of Appendices.....	v
Chapter 1: Introduction	1
Attachment Security and Prosocial Comforting.....	1
Empirical Links Between Attachment Security and Comforting.	3
Potential Mediators of Links Between Attachment Security and Prosocial Comforting.....	8
Caregiving Behavioral System	8
Link Between Children’s Caregiving Script and Comforting Behaviors (Path B)...	11
Link Between Children’s Caregiving Script and Attachment Security (Path A)	12
The Current Study.....	13
Chapter 2: Method.....	15
Participants.....	15
Procedure.....	16
Measures	17
Chapter 3: Results.....	26
Data Transformation and Reduction	26
Preliminary Analyses.....	27
Principal Analyses.....	28
Attachment and Caregiving Scripts	29
Mediation of Attachment Security on Prosocial Comforting through Caregiving Scripts	31
Chapter 4: Discussion	32
Attachment and Prosocial Comforting	32
Attachment and Caregiving Script.....	33
Caregiving Scripts and Prosocial Comforting	36
Additional Findings	38
Limitations and Future Directions	41
Appendices.....	45
Tables	114
Figures.....	120
References	126

List of Tables

Table 1: Intercoder Reliability for Attachment Story Completion Task Variables

Table 2: Intercoder Reliability for Caregiving Story Completion Task Variables

Table 3: Intercoder Reliability for Clipboard Task Variables

Table 4: Demographic Information of Children Participants by Attachment Classification

Table 5: Correlation Matrix of Experimental and Demographic Variables

Table 6: Bootstrap Analysis of the Magnitude and Statistical Significance of the Direct
and Indirect Effects

List of Figures

Figure 1. The Proposed Model of Study

Figure 2. Scatterplot of the relation between Attachment Security and Comforting Global Scores

Figure 3. Scatterplot showing the relation between Attachment Security and Caregiving Script Scores.

Figure 4. Two-way Interaction between Attachment Security and Child Race in Predicting Caregiving Scripts.

Figure 5. Scatterplot showing the relation between Caregiving Script scores and Clipboard – Global scores.

Figure 6. The Mediation Model

List of Appendices

Appendix A: IRB Approval Letter

Appendix B: Attachment Story Completion Task – Story Stems

Appendix C: Attachment Story Completion Task Manual and Coding Sheet

Appendix D: Caregiving Story Completion Task – Story Stems

Appendix E: Caregiving Story Completion Task Manual and Coding Sheet

Appendix F: Comforting Task Coding Manual

Appendix G: PPVT Example

Chapter 1: Introduction

Prosocial behaviors, voluntary action intended to benefit another person (Grusec, Hastings, & Almas, 2011), are considered important markers of children's successful social development. These behaviors (e.g., helping, sharing, and caring; Dunfield & Kuhlmeier, 2013) are associated with a host of positive outcomes, including better emotional adjustment (Crick, 1996), stronger peer relationships (Rose-Krasnor & Denham, 2009), and less aggressive behavior (Yarrow et al., 1976). Given the importance of these associated outcomes for social development, studying factors that contribute to or influence the development of prosocial behaviors is important.

One particular factor that has been studied is the parent-child relationship, most notably attachment security (Bowlby, 1969/1982). The goal of the proposed study is to investigate the relations between attachment security and prosocial comforting in preschool children. In the remainder of this introduction, I will first provide a background on attachment security before summarizing the evidence of attachment security's links to children's prosocial comforting behaviors. Then, I will propose a novel mediator, caregiving scripts, explaining the influence of attachment security on prosocial comforting. Finally, I will describe the proposed study, designed to study this mediator, and outline the study hypotheses.

Attachment Security and Prosocial Comforting

Attachment theory (Bowlby, 1969/1982, 1973, 1980) proposes that the parent-child relationship is the product of evolutionary goals of survival. Children are not capable of taking care of themselves as infants and young children and therefore, need to maintain proximity to

their caregivers. To do so, children developed a set of behaviors, such as reaching or crying, to assist in the goal of proximity maintenance. Bowlby (1969/1982) proposed that these behaviors are organized in a biologically-based attachment behavioral system and that when presented with a threat, the attachment system guides children to their attachment figures, most typically their parents.

In turn, caregivers respond to these bids for proximity. Differences in caregivers' responses to these bids for proximity manifest in differences in children's attachment behaviors. When parents sensitively respond, children will generally use their parents as a source of safety when necessary (Bowlby, 1969/1982). Children who behave in such a way are considered to be securely attached to their caregiver. On the other hand, parents who do not respond promptly or sensitively are likely to have children who develop insecure attachment to their parents (Ainsworth, Blehar, Waters, & Wall, 1978). Children who are insecurely attached do not see their parents as a source of comfort and will not turn to them in times of distress. Rather, these children will rely on other behavioral strategies to regulate their own emotional distress. Finally, children who are classified as disorganized are children who do not have a predominant strategy used to regulate their emotions (van Ijzendoorn, Scheungel, & Bakermans-Kranenberg, 1999).

In addition to differences in behaviors, the early experiences with caregivers manifest themselves in different cognitive representations. Based on these early experiences with their caregivers, children develop a cognitive representation that Bowlby called the internal working model (IWM; Bowlby, 1969/1982). Bowlby argued that children develop an internal working model, representing their sense of self, their relationship with others, and their understanding of the world. The internal working model contains both knowledge about the experiences with attachment figures, as well as the affective components of these experiences, and is thought to be

generally stable across an individual's life (Pietromanaco & Barrett, 2000), by representing how caregivers in past relationships responded to him/her. Finally, this representation is argued to guide the development of future relationships by guiding children's affect, cognition, and behavior (Main, Kaplan, & Cassidy, 1985).

Both the emotion regulation strategies and the internal working model are considered two primary mechanisms through which attachment security influences children's comforting behaviors. Children who are securely attached are better able to regulate their own emotions in distressing situations and therefore may be able to focus on others' distress. Additionally, these children have an internal working model that provides a guide for the behaviors to use in these distressing situations. These securely attached children have experienced comforting behaviors from their parents and thus have knowledge of their parents' comforting behaviors (Sroufe & Fleeson, 1986). As these children know the behaviors, attachment theorists believe that these children will be more capable of providing comfort. In comparison, insecurely attached children have not received the same comforting from their parents and will not be as capable at providing comfort to distressed others.

In summary, attachment security is theoretically linked to children's prosocial comforting, as a result of both emotion regulation skills and cognitive representations. In the following section, the empirical work studying attachment security, internal working models and their relation to prosocial comforting are reviewed.

Empirical Links Between Attachment Security and Comforting.

As early as infancy and toddlerhood, there appears to be a link between attachment security and children's prosocial behavior. Van der Mark and van Ijzendoorn (2002) invited parents and their 16-month old daughters to complete a home visit. During this home visit,

parents and children completed a series of tasks, including a 30-second simulated distress task in which the experimenter pretended to hurt her finger. Following the experimenter's simulated pain situation, mothers were asked to pretend that they had been hurt and cough as if they were choking. These tasks were used as measures of children's empathic concern and prosocial behavior (e.g., rubbing of a hurt finger) and the children were given a global score from one to seven. A week after the initial home visit, the same family completed a lab visit, in which they completed the Strange Situation procedure (Ainsworth & Bell, 1970), a measure of attachment security in which mother and child are separated from one another and a stranger is introduced. During the procedure the mom comes back for a brief reunion before leaving again. At the end, the mother returns for good. Children's behavior during these reunion phases is used to characterize their attachment security. After the Strange Situation was completed, experimenter and mother each pretended to hurt themselves again. This same sequence was completed when children were 22 – months old as well.

Van der Mark and van Ijzendoorn (2002) found that attachment security at 22 – months was related to concurrent prosocial behavior, despite no links being found at 16 months. Surprisingly, this link was only seen for prosocial behavior directed towards the experimenter, with no link between attachment security and the prosocial behavior directed towards the mother. The authors offer a developmental trajectory argument to explain these findings. The study of prosocial behavior is argued to be best investigated by the end of the second year of life and beyond, as this is a period in which children are thought to have developed the cognitive and emotional skills necessary for empathic concern and prosocial behavior (Zahn-Waxler et al., 1992). When children have fully developed these skills and are equally capable of comforting,

children's individual differences in comforting behaviors are likely explained by other sources of individual differences, such as attachment security.

Studies examining the link between attachment security and prosocial behavior in toddlerhood allow for continued examination of Van der Mark and van IJzendoorn's trajectory hypothesis. If their hypothesis were accurate, it would be expected that links between attachment security and prosocial behavior would be more consistent as children get older. Yet, even in preschool aged children, mixed results have been found with some studies finding positive results and others finding null results. Waters, Wippman, and Sroufe (1979) had mothers and children complete the strange situation procedure at 15 months of age. In a follow up session when the children were 42 months old, children were observed at preschool and scored on a social competence Q – sort, a measure in which a trained observer or the child's mother rates the child on a number of items from most characteristic to least characteristic of the observed child. Waters et al. (1979) found that children who were securely attached were more highly rated in being sympathetic to a peer's distress.

In addition to increased sympathy towards peer distress, secure attachment has been found to predict children's comforting of a younger sibling (Teti & Ablard, 1989; Volling et. al., 2004). Teti and Ablard (1989) invited mothers, older siblings (ages 3–7 years), and younger siblings to complete a visit at a university playroom. During the visit, both children completed measures of attachment security before completing an observational measure of sibling interaction, designed to elicit distress. Sibling's caregiving behaviors, such as verbal reassurances, physical comforting, and redirecting attention were coded during these interactions. Teti and Ablard (1989) found that, when mothers were not available, secure children were more likely to comfort their distressed younger siblings. Additionally, Volling and

colleagues (2004) found that older siblings who were insecurely attached to their mother were more likely to ignore their sibling's distress than securely attached children. Taken together, these findings indicate that the variation in the development of the caregiving system is related to past attachment experiences and that this influence can be observed early in life.

Recent data from our lab (Beier et. al., 2016) suggest that securely attached children provide more comforting to a distressed experimenter in enacted lab tasks. Additionally, this effect was driven by differences between children who were securely attached and children who were classified as disorganized. Children classified as disorganized have been found to be particularly at risk in a variety of areas of functioning (Lyons-Ruth & Jacobvitz, 2016; van Ijzendoorn et. al., 1999).

Other studies, such as Laible (2006), have investigated links between attachment security and mother – reported prosocial behavior in children. When their children were 52 months old, mothers completed the Attachment Q-sort (AQS), a well-validated measure in which mothers or observers rate the child on a set of described behaviors by indicating how characteristic of their child these behaviors are. From these ratings, children can be assigned an attachment security score. In addition, the same mothers completed a questionnaire to measure their children's prosocial behavior (e.g., "Kind towards peers or siblings"). Laible (2006) found that attachment security on the AQS was significantly predictive of mother – reported prosocial behavior.

However, comparable studies have observed mixed or null results. Murphy and Laible (2013) observed children at 42 and 48 months in a lab visit, scoring for attachment security on the experimenter rated AQS. When children first entered the lab for the visit, they were presented with an infant in an adjacent room. Later, they heard this infant crying. Children's facial expressions in response to the infant crying were scored for as a measure of concern for

others. Murphy and Laible (2013) found that attachment security was not related to concurrent concern for others, but attachment at 42 months was predictive of concern at 48 months. Similarly, Mitchel-Copeland, Denham, and DeMulder (1997) found that children's attachment security to their mother was not related to children's observed prosocial responses to peer distress in the classroom. It is unclear why these null results were observed. However, it appears that these behavioral measures of attachment security are generally predictive of prosocial comforting.

In addition to behavioral measures of attachment security, toddlers' attachment security measured as a cognitive representation has been linked to prosocial comforting. In these studies, attachment security is measured through narrative procedures in which children project their representations of attachment relationships (for a review, see Bretherton & Munholland, 2008). In these narrative procedures, children are presented with hypothetical scenarios and asked to provide missing details about the scenarios. By filling in these details, attachment theorists believe that children are sharing their internalized representations (Bretherton et. al., 1990). In doll story stem methods, for example, children are presented with a set of family dolls and told the beginning of a story (e.g., family walking and child falls off rock). They are then asked to complete the story and the story produced is scored for attachment content.

To date, three studies have investigated links between internal working models of attachment and prosocial comforting with mixed results being observed. Futh, O'Connor, Matias, & Green (2008) had 66-month old children complete the Manchester Child Attachment Story Task (Green et. al., 2000), a previously validated doll story measurement. Additionally, mothers and teachers completed a questionnaire on their children, including a prosocial behavior subscale. Positive links between story coherence and prosocial behavior were detected using

both parent reports and teacher reports. However, Bureau and Moss (2010) found no links between children's attachment security in doll stories to teacher reported prosocial behavior, despite using similar methodologies. Finally, Laible (2006) investigated links between children's attachment security assessed with in a set of doll tasks to prosocial behavior at both the representational and behavior level. Mother reported prosocial behavior and prosocial themes in doll stories were used as measures of children's prosocial behavior. Laible (2006) observed no significant links between attachment security and either measure of prosocial behavior. The observed inconsistency is surprising and no clear rationale is apparent, given the methodological consistencies and a theoretical foundation that would expect to observe a positive relation between attachment and prosocial behavior.

Potential Mediators of Links Between Attachment Security and Prosocial Comforting

Caregiving Behavioral System

As noted above, previous studies have shown inconsistent links between measures of attachment and prosocial comforting (Laible, 2006). One potential reason for the inconsistency is that attachment behaviors are related to resolving distress by turning towards the attachment figure (Ainsworth, 1979). Following this, it would be expected that attachment security, and thus the internal working model, would guide behaviors directed towards *receiving* comfort from children's attachment figure. However, *providing* comfort to others may be organized in some separate cognitive representation. Particularly, it may be the case that children develop a representation of care provision based on the *caregiving behavioral system* that may be more predictive of children's prosocial comforting of others.

Bowlby (1969/1982) was highly influenced by ethology and utilized the concept of behavior systems to help frame parent – child interactions that he observed. Behavior systems

are biologically based sets of behaviors directed towards a specific goal or function that is motivated by internal or environmental cues (Bowlby, 1969/1982). Bowlby believed that parent child interactions were based on two primary behavior systems: the attachment and the caregiving behavior systems (1969/1982). Whereas the attachment behavioral system was proposed to explain how and why infants seek and maintain proximity to their attachment figure, the caregiving system functions to ensure caregivers proximity to their own infants, thus ensuring that the caregiver could provide care and ensure the safety of the infant.

By and large, the study of *children's* caregiving behavioral systems has been ignored as the caregiving behavioral system is used principally when theorizing about parenting behavior (for a review, see George & Solomon, 2008). However, evidence for existence of the caregiving system early in life can be seen in children's play mothering (Pryce, 1995). Both human children and non-human primates show mothering behaviors in play scenarios, suggesting that this caregiving system is a biologically based system. The play mothering, however, tends to be fragmented and show very little functional similarities to actual mothering behaviors (Pryce, 1995). Given this fragmented nature of the behavior, George and Solomon (2008) argue that the caregiving system develops across the lifespan, as important caregiving milestones, such as giving birth, are experienced.

One source of influence for children's caregiving behaviors is their relationship with their parents. In the beginning of life, children have multiple daily experiences in which care is sought and received. From what we know about the development of cognitive representations, it seems likely that children will develop experience-based representations that take the form of a cognitive script. Cognitive scripts are abstracted representations that define previously experienced events and the sequential order in which the events typically occur (Schank &

Abelson, 1975). For example, a restaurant script may follow the sequence of entering the restaurant, ordering from the menu, receiving food, eating, paying the bill, and leaving. This restaurant script would be activated upon entering a restaurant and would guide the individual to follow the sequence described above. By understanding and following the sequence, a person is best able to understand the experienced events.

The development of cognitive scripts relies on experience (Hudson, Fivush, & Kuebli, 2006). When people experience an event for the first time, it is likely that they have no knowledge of what to do and need assistance to successfully navigate this novel event. Following their initial experience with an event, people begin to develop a script representation and this script assists them in predicting how future events will unfold (Schank & Abelson, 1975). Once a script has been developed, people's scripts are generally stable and invariant (Hudson et. al., 2006). However, if one's script is contradicted by events that do not follow the represented order, the script can be adjusted to assimilate this new information (Hudson, et. al., 2006). For example, a restaurant script might include paying at the end of the meal. Yet, for a fast food restaurant, payment is instead made before food has arrived. With repeated events, scripts are refined and more scripts are developed to provide individuals with more accurate predictions about future events.

To date, no one has investigated caregiving using this script framework, how individual differences in attachment relate to individual differences in caregiving script representations or children's prosocial comforting behaviors. The proposed caregiving script would represent a sequence of events in which (1) some other person encounters a threat or obstacle, leading to distress; (2) an available caregiver recognizes the distress; (3) this caregiver approaches the distressed other and comforts the distressed other; (4) the provided comfort assists the distressed

other in calming down; (5) the problem is resolved; (6) Both the caregiver and the previously distressed other return to normalcy/previous action. The proposed study was designed to investigate a mediation model in which caregiving scripts mediate the relationship between attachment security and prosocial comforting (Figure 1).

Link Between Children's Caregiving Script and Comforting Behaviors (Path B)

Although studies of children's caregiving behavioral systems are limited, studies have shown that children possess representations of caregiving and that these representations guide their caregiving behavior. Garner, Jones, and Palmer (1994) proposed that situational knowledge influence children's caregiving behaviors. They proposed that children who do not have the knowledge and behavioral repertoire necessary might be motivated to provide care but not capable of providing quality childcare. To test this hypothesis, older siblings between the ages of 36 and 66 months of age and their younger siblings completed the modified strange situation procedure used in other studies of sibling caregiving. Caregiving behaviors, such as physical comforting, verbal reassurances, and redirecting of attention were tallied. Following a strange situation procedure, older siblings completed tasks of emotional situation knowledge, emotional role taking, and caregiving knowledge. In the caregiving knowledge measure, children were presented with a mother, toddler, and preschool doll. They were then presented with a scenario in which the mother doll had to leave and the preschooler was then asked to take care of the toddler. After setting up this scenario, children were asked to describe what they could do to provide care for their younger sibling. Responses were scored for each unique response that could be categorized into the following categories: teach, care, protect, play, share, help, love or prohibit. They found that the children who showed greater caregiving knowledge and emotional

role taking abilities were more likely to show greater amounts of caregiving behavior in the strange situation procedure (Garner et al., 1994).

These findings provide preliminary evidence that cognitive representations guide caregiving behaviors. However, the representations investigated are rudimentary and may be valuable to investigate other forms of caregiving representations, such as a caregiving script. The proposed caregiving script would represent events in which others are distressed but the caregiver is not distressed and can therefore provide comforting. Based on this script, it would be expected that children who have this script representation will be able to call on the script when encountering distressed others and should therefore be more capable of comforting others.

Link Between Children's Caregiving Script and Attachment Security (Path A)

In addition to guiding children's comforting behaviors, the model proposes that attachment security will predict children's caregiving script representations. Studies have shown that previous attachment experiences influence caregiving behaviors, with secure children generally showing better care provision to distressed siblings (Teti & Ablard, 1989). This may be because these past attachment experiences inform the behavioral repertoire of children. Children who receive more care from their parents when distressed, and thus are more likely to develop secure attachment, will develop an understanding of how to best provide care. On the other hand, children who have received less responsive care from their parents (evidenced by developing an insecure attachment) tend to ignore distressed others (Volling et. al., 2004). Similar trends have been observed in non-human primates. When *rhesus* monkeys are separated from their mother in the first year of life, and thus do not develop an attachment bond to them, the monkeys do not show evidence of play-mothering behaviors because they do not know what these behaviors look like (Harlow et. al., 1966). Thus, early attachment experiences are necessary for children to learn caregiving behaviors and develop a caregiving script.

In summary, evidence exists suggest that individual differences in the caregiving behavioral system can be observed in early childhood and that these differences manifest at both the behavioral and representational level. However, no studies to date have investigated predictors of individual differences in children's caregiving representations, namely attachment security, nor how these predictors and children's caregiving representations relate to children's prosocial comforting. In the following section, the current study seeking to fill this gap is summarized.

The Current Study

The current study sought to investigate links among attachment security, caregiving scripts, and prosocial comforting. Specifically the study had two goals. First, the study sought to add to the body of research on the relation between attachment security and prosocial comforting by using an observational measure of prosocial behavior. Previous studies investigating the relation between attachment representations have relied on other reported measures of prosocial behavior or measured prosocial behavior in naturalistic settings. This study utilizes an enacted lab task with an adult experimenter being distressed, a previously unutilized method in the study of attachment security and prosocial comforting. Although these other-reported measures have strengths, they also come with their own set of drawbacks. Observational measures have their own strengths and avoid problems associated with other – reported measures. It was hypothesized that securely attached children will show greater comforting towards an experimenter than children who are insecurely attached. In addition, based on previous data from our lab (Beier et. al., 2016), it was hypothesized that disorganized children would show less comforting behavior than other children.

Second, I proposed that previous studies have failed to address the development of additional behavioral systems that may relate to prosocial comforting. To remedy this, here I

proposed a novel mechanism explaining the link between attachment security and prosocial comforting, the caregiving script. The caregiving behavioral system is theoretically linked to the attachment behavioral system (Bowlby, 1969), yet previous studies have not investigated children's representations of caregiving. To examine this theorized caregiving script, children were given a set of doll stories where a protagonist doll and friends are presented with a distressing scenario. Children's caregiving script scores were determined based on the content of the stories children produce. It was hypothesized that caregiving script knowledge will mediate the link between attachment and children's comforting behaviors.

Chapter 2: Method

Participants

Participants were 98 preschool aged children and their mothers, recruited from the greater Washington D.C metropolitan area as part of a larger study on children's comforting behavior. Participants were recruited using flyers dispensed to local schools, community centers, word of mouth and neighborhood email listings. To be eligible for the larger study, dyads had to fulfill the following requirements: (a) the child must be 4 years old, (b) must speak English fluently, and (c) must not have any developmental disabilities. Data from 10 participants were discarded for the following reasons: the first 7 were discarded because substantial protocol changes were made after their visits, 2 were discarded due to technical difficulties with video, and 1 was discarded because the child was not typically developing, leaving a final sample size of 88 children ($M = 53.6$ months, $SD = 3.41$ months; missing data on 6 participants because mother declined to answer). The racial breakdown of the sample was 48% White, 19% African American, 11% Hispanic, 2% Asian, 15% mixed race, and 1% other races. Three mothers (3%) declined to comment on the child's race and racial identity could not be determined from videotapes. The sample was from a high SES sample with 45% reporting an average annual household income of greater than \$100,000, 13% reported an annual household income of \$80,000 - \$99,999, 6% reported an annual household income of \$60,000 – \$79,999, 11% reported an annual household income of \$40,000 - \$59,999, 13% reported an annual household income of \$20,000 - \$39,999, and 3% reported an annual household income of less than \$20,000. Eight (9%) mothers declined to report their annual household income.

Procedure

Interested participants were called to establish all participation criterion, give mothers a chance to ask questions about the study, and gain verbal consent for participation in the study. At the end of phone call, two separate visits to the campus laboratory were scheduled. After the initial phone call, mothers were emailed a set of questionnaires to complete before their first visit. All questionnaires were administered on Qualtrics online survey services.

During the first visit, lasting approximately ninety minutes, mothers were given the chance to ask any further questions before written consent for both visits was obtained. Following a brief free play period, mothers and their child were separated for the remainder of the visit. During the visit, children were experimentally primed with images of social interactions and then completed a series of behavioral tasks designed to assess comforting behaviors. At the same time, mothers completed a series of tasks designed to elicit maternal perceptions of children's emotions and maternal response to children's distress. Measures collected during the first visit are not included in the present study and will not be discussed further.

Although the initial goal was for the second visit to occur within two weeks of the first visit, scheduling difficulties with some families necessitated a longer time frame. Of the 88 families used for analysis, 54 came within the first two weeks and 76 came within the first month. The longest length of time between visits was 78 days. The second visit is the focus of the current study and each of the measures described in the measures section occur during the second visit.

At the beginning of the second visit, mothers were reminded of the study goals and allowed a chance to ask any final questions. During this introduction, children were invited to complete a puzzle with the experimenter to help familiarize them with the environment and

experimenter. Following this brief introductory period, mother and child were separated to begin the experimental tasks. During the visit, mothers were in an adjacent room and available to the child the child requested to be done. After separating, children first completed a modified version of the Bryant Empathy Questionnaire (Bryant, 1982). After completing the brief questionnaire, children completed one of two doll story stem tasks, assessing either children's attachment security or children's caregiving scripts. In the doll story stem tasks, children were shown a set of dolls and told the beginning of a story, using dolls as actors in the story. After the experimenter presented the story, children were asked to finish the story by saying what happens next. The order in which these story stems was presented was randomly assigned and counter-balanced in two orders; in the forward order, the attachment security story stems were presented first and in the backwards order, the caregiving story stems were shown first. After completing the first set of story stems, children completed the Peabody Picture Vocabulary Test (PPVT; Dunn & Dunn, 2007), a measure of children's vocabulary. After completing the PPVT, the child and experimenter engaged in a brief 5-minute play session. Following this playtime, children completed whichever doll story task they had not completed. After finishing the doll story tasks, children were given a toy to play with while the experimenter set up a behavioral task designed to elicit comforting behaviors in response to the experimenter's distress. Finally, a four-minute reunion between mother and child occurred at the end of the visit. At the end of the session, mothers were paid \$30 and children received a small toy as thanks for their participation in the study.

Measures

Attachment Security. Attachment security was measured using the Attachment Story Completion Task (ASCT; Bretherton, Ridgeway, & Cassidy, 1990; taken from the MacArthur

Story Stem Battery (MSSB); Emde, Wolf, & Oppenheim, 2003). The ASCT is a doll story stem task in which the experimenter presented children with a family of Mom, Dad, Grandmother, and Child dolls. The same mother, father, and grandmother doll was used for all participants. Child dolls were gender matched, with boys using a boy doll named Bob and girls using a girl doll named Jane. After children were familiarized with the dolls, children were presented with the beginning of a story. An initial warm up story (“The Birthday Party”) was used to teach participants the rules of the game. After completing the warm up story, five other story stems (“Spilled Juice,” “Hurt Knee,” “Monster in the Bedroom,” “Departure,” & Reunion”; see Appendix B) were shown and are designed to elicit children’s understanding of attachment related issues. After the experimenter had finished the beginning of the story, children were prompted with “Show me what happens next.” An additional set of three prompts was developed to help children elaborate on the stories they produced. If children did not address the major event of the story (e.g., hurt knee), children were prompted with “What do they do about ___?” If only one response was given, children were prompted with “Anything else?” Finally, if children used pronouns that were not clear, they were asked “Who did ___?” Each story was considered finished when the child indicated that they had completed their story or had stopped telling the story. All stories produced by the children were video recorded and transcribed for later coding. The story stem battery has been shown to have good psychometric properties with studies finding longitudinal stability (Waters et. al., 1998) and high percent agreement on codes for individual stories (Macfie, Toth, Cicchetti, Robinson, & Emde, 1999).

Coding procedures. Children’s responses were videotaped and independently coded by three trained coders and two expert coders (i.e., coders who designed the coding system). Coding was completed using a manual developed in our lab (Stern, Martin, & Cassidy, 2016), modified

from Bretherton et al. (1990) by fleshing out more details, while drawing on Cassidy (1988), and Main et al. (1985). Coding focused on three of the story stems (Hurt Knee, Monster in the Bedroom, and Separation/Reunion), taken from the MSSB (Emde et. al., 2003), which were then scored as a single story. The spilled juice story was dropped due to limitations in response variability and attachment content. Children's responses were coded for both content (e.g., parents positively involved, story issue is resolved) and process (i.e., coherence). Children's coherent resolution of the attachment problem with the help of the caregiver(s) are principal indicators of security. Avoidant stories were characterized by children resolving the problem independently (without parental assistance) or by disengagement from the participant child. Disorganized attachment narratives were characterized by themes of parental helplessness, parental violence, and/or death of family members.(see Appendix C for coding manual with scoring details). Children were assigned a categorical attachment classification (secure, avoidant, or disorganized), as well as a 5-point security score (1 = *highly insecure*; 5 = *highly secure*). Finally, children were assigned a classification of organized (combining secure classifications and avoidant classifications) or a classification of disorganized.

Eighty cases (91%) were double-coded and coder discrepancies were resolved by consensus in weekly coding meetings, held to prevent coder drift. For children's security scores and classification assignment, coders were considered discrepant if they did not perfectly agree. Coders coded 10 videos per week. In all cases, coders were unaware of who was coding which video, were not allowed to code in the same room and hid their codes, to ensure that all coding was completed blindly.

Inter-coder reliability on the double coded cases was calculated using Krippendorff's alpha reliability estimate (Krippendorff, 2007). Krippendorff's alpha is capable of calculating

reliability estimates for any level of measurement, for any amount of coders, and with missing data, regardless of sample size. Additionally, this estimate of reliability is considered more conservative (Lombard, Snyder-Duch, & Bracken, 2002). Cases that were not double coded were excluded from calculating reliability estimates.

Estimates were generated using KALPHA (Hayes & Krippendorff, 2007), an SPSS macro. 5000 bootstrap samples were created from the sample of double coded cases by random sampling with replacement. Estimates were calculated from the bootstrapped samples. Estimates of .70 or above indicate sufficient reliability (Lombard, Snyder-Duch, & Bracken, 2002). Reliability estimates were calculated for children's attachment security (5-point scale) and attachment classifications. Coding reliabilities for each of these were at or above .7 (see Table 1)

Caregiving Scripts. Children's caregiving scripts were assessed using a set of doll story stems developed by David Martin, Jessica Stern, and Jude Cassidy (see Appendix D). Four story stems were developed with different emotional valences; two are fear-valenced ("Big Dog" & "Sleepover"), one is sadness-valenced ("Lost Toy"), and one focused on physical pain ("Swimming Pool"). This was done to present children with a wide variety of situations and possible responses.

In the story stems, children were introduced to a named protagonist doll (Noah for boys & Gabby for girls). In each story, the protagonist and an unnamed friend (new for each story) were presented in normal interactions at which point, they were interrupted by some distressing event (e.g., scary dog barking). Each story was set up such that the friend was distressed by the named protagonist was not distressed (e.g., "Noah likes dogs but his friend does not"). After the beginning was presented, children were prompted with "Show and tell me what happens next" and the dolls were handed over to assist in completing the story. Children's stories were

considered completed after children had verbally indicated that their story was finished, had handed the dolls back to the experimenter, or after children had indicated that they were finished by reclining in the chair and looking at the experimenter expectantly. Two additional prompts were given to help children elaborate on the stories they produced. Children were asked “Does [Protagonist] do anything (else)?” and “Does [Protagonist] say anything (else)?”

Coding procedures. Children’s responses were videotaped and independently coded by three trained coders and one expert coder (i.e., coder who designed the coding system). Coding was completed using a manual developed in our lab (Martin, Stern, & Cassidy, 2016). Children’s responses were coded for the presence of care provision and communication of whether the care was effective in solving the problem (see Appendix E for coding manual with scoring details). Children were assigned a caregiving script score on a 4-point scale (1 = *no caregiving script*, 4 = *clear caregiving script knowledge*).

Sixty-three cases (72%) were double-coded and coder discrepancies were resolved by consensus in weekly coding meetings, held to prevent coder drift. For children’s caregiving script scores, coders were considered discrepant if they did not perfectly agree. Coders coded 10 videos per week, 7 of which overlapped with another coder. In all cases, coders were unaware of who was coding which video, were not allowed to code in the same room and hid their codes, to ensure that all coding was completed blindly.

Inter-coder reliability on the double coded cases was calculated using Krippendorff’s alpha reliability estimate (Krippendorff, 2007). Krippendorff’s alpha is capable of calculating reliability estimates for any level of measurement, for any amount of coders, and with missing data, regardless of sample size. Additionally, this estimate of reliability is considered more

conservative (Lombard, Snyder-Duch, & Bracken, 2002). Cases that were not double coded were excluded from calculating reliability estimates.

Estimates were generated using KALPHA (Hayes & Krippendorff, 2007), an SPSS macro. 5000 bootstrap samples were created from the sample of double coded cases by random sampling with replacement. Estimates were calculated from the bootstrapped samples. Estimates of .70 or above indicate sufficient reliability (Lombard, Snyder-Duch, & Bracken, 2002). Reliability estimates were calculated for children's caregiving scripts (4-point scale). Coding reliabilities were at or above .7 for each individual story script score (see Table 2).

Prosocial Comforting Behavior. Children's prosocial comforting behaviors were assessed in an adaptation of a previously validated task (Hastings, Rubin, & DeRose, 2005). In the task, children were engaged in a free play situation while the adult experimenter picks up papers that had been shown to the child in earlier tasks. The experimenter put the papers on a clipboard and while doing so, the experimenter simulated being pinched by the clipboard by having the clipboard produce a loud snapping sound and exclaiming "Ouch! I pinched my finger!" This prompt marked the start of the task. After stating the prompt, the experimenter sat down on a nearby couch, held their finger, and remained seated for two minutes.

The two-minute task was divided into four separate 30-second segments. During the first segment of the task, the experimenter showed distress by moaning and sighing without looking at the child. In the second segment, the experimenter continued to express sadness and stated the problem three separate times, without looking at the child (e.g., "I pinched my finger," "It hurts a lot."). In the third segment, the experimenter stated the problem again, while looking at the child. In the final segment, the experimenter made a direct request for assistance while looking at the child (e.g., "Is there anything you can do?"). If the child answered yes, the experimenter asked

“What?” The task lasted two minutes, at which point, the experimenter stated “It’s ok, it’s starting to feel better” and play resumed.

Coding. Children’s behaviors and responses were videotaped and independently coded. For each participant, the two-minute task was broken down in to 10 second segments and each segment was coded for the presence of: *comforting behaviors, negativity, distress, concerned attention, and proximity*. These behaviors were then used to create a global score ranging from ranging from 1 (low comforting) to 5 (high comforting). A detailed coding manual (Gross, Brett, Cassidy, & Beier, 2013) is included in Appendix F for more details on the scoring system used. The scoring system has been used in an unpublished study of children’s response to experimenter distress using similar tasks. In this study, coders were able to achieve coder agreement for 90% of all codes.

Three trained coders and two expert coders (i.e., coders with ample experience using this coding system) coded each case. Coders were trained over the course of two months through weekly coding assignments. During training, coders each independently coded 5 videos per week (including pilot cases and randomly selected videotapes) and then met with two expert coders to go over discrepancies and resolve difficulties with coding or misunderstandings of the coding manual. Prior to beginning official coding, all coders met an acceptable reliability threshold (i.e., above .70 on all variables of interest).

Fifty-one cases (58%) were double coded and coder discrepancies resolved by consensus in weekly coding meetings, held to prevent coder drift. Coders were considered discrepant on the global comforting score if they did not perfectly agree. All coders coded 5 videos per week, four of which overlapped with one other coder. In all cases, coders were unaware of who was coding

which video, were not allowed to code in the same room and hid their codes, to ensure that all coding was completed blindly.

Inter-coder reliability on the double coded cases was calculated using Krippendorff's alpha reliability estimate (Krippendorff, 2007). Krippendorff's alpha is capable of calculating reliability estimates for any level of measurement, for any amount of coders, and with missing data, regardless of sample size. Additionally, this estimate of reliability is considered more conservative (Lombard, Snyder-Duch, & Bracken, 2002). Cases that were not double coded were excluded from calculating reliability estimates.

Estimates were generated using KALPHA (Hayes & Krippendorff, 2007), an SPSS macro. 5000 bootstrap samples were created from the sample of double coded cases by random sampling with replacement. Estimates were calculated from the bootstrapped samples. Estimates of .70 or above indicate sufficient reliability (Lombard, Snyder-Duch, & Bracken, 2002). Reliability estimates were calculated for children's global comforting scores (5-point scale). Other than two variables that occurred infrequently (Amount of distress and amount of hostility), reliability estimates were at or above .7 (see Table 3).

Vocabulary Knowledge. Vocabulary knowledge was measuring for use as a control variable and was assessed using the Peabody Picture Vocabulary Task (PPVT; Dunn & Dunn, 2007), a 15-minute clinical assessment of vocabulary. In the task, children were shown a series of pictures by the experimenter and then point towards the picture of an object the experimenter named. For each trial, four images were shown. Pictures were shown in sets of 12 and the task continued until the child made 8 errors within one set (for example, see Appendix G). The PPVT has demonstrated good internal consistency, test-retest reliability, and construct validity with other measures vocabulary measures (Dunn & Dunn, 2007).

A final vocabulary scores was then calculated by subtracting the number of errors made across all sets from the total number of pictures seen. Two research assistants who were not associated with any of the coding teams independently calculated scores. Scores were then compared using CompareIt! Version 4.2 (Grig Software, 2010), a software program that compares two data files and highlights differences. In the case of discrepancies, scores were independently calculated by a graduate student to make a final determination of the score.

Chapter 3: Results

The results are organized into 3 sections: data transformation, preliminary analyses, and principal analyses. Principal analyses are subdivided into sections based on the pathways of the model. First, the relation between attachment and prosocial comforting is reported (Path C). Second, the relation between attachment and caregiving scripts is reported (Path A). Third, the relation between caregiving scripts and prosocial comforting is reported (Path B). Finally, the indirect effect of attachment security on prosocial comforting through caregiving scripts is reported.

Data Transformation and Reduction

Attachment Security. Attachment security scores for each story produced by the child were first tested for their distributional properties. Skewness values exceeding ± 1 were considered highly skewed and required logarithmic transformations (Tabachnick and Fidell, 2007). Values ranging from ± 0.50 - ± 0.99 were considered moderately skewed and required square-root transformation (Tabachnick and Fidell, 2007). Skewness values for children's attachment security scores on individual stories ranged from -0.02 to 0.21 and therefore, no transformations were required. Consistent with previous studies of attachment security using doll story stems (Cassidy, 1998), a final security score was calculated by averaging security scores in each of the three stories. The skewness of the mean security score was 0.05.

Caregiving Scripts. Caregiving script scores for each story produced by the child were first tested for their distributional properties. The same guidelines used in the attachment stories were used here. Skewness for the Big Dog story was 0.68 and skewness for the Swimming Pool story was 0.57. Consistent with Tabachnick and Fidell (2007), square-root transformation is the

optimal strategy for moderately skewed variables and so script scores for the Big Dog and Swimming Pool stories were transformed. Skewness for the Sleepover story (0.23) and lost toy (0.29) were not skewed and therefore no transformation was used. A mean caregiving script score was then calculated by averaging scores on each of the four stories. Skewness for the mean caregiving script score was 0.28.

Prosocial Comforting. Distributional properties of the comforting global score was tested. Skewness of the comforting score was 0.38 and therefore, no transformation was required.

Preliminary Analyses

I started by examining relations of study variables with key demographic factors of child sex, child age (months), and child race. Table 4 presents demographic information, separated by attachment classifications. Children's attachment classifications were distributed similarly to rates found in meta-analyses (Bakermans-Kranenburg & van Ijzendoorn, 2009). Correlations among the study variables were assessed. Table 5 presents a correlation matrix including key study variables and demographic factors.

Child sex was significantly related to attachment security scores, $t(84) = 2.97, p < .001, d = .66$, such that girls ($M = 3.4, SD = 1.13$) scored higher on attachment security than boys ($M = 2.7, SD = 1.17$). Child sex was not significantly related to caregiving scripts scores, $t(84) = 1.05, p = .30, d = .23$, or comforting scores, $t(81) = -.94, p = .35, d = .20$. Given that sex was significantly related to a predictor, it was included as a covariate in principal analyses.

Given limited sample size for some groups, child race was dichotomized to groups of white and non-white. Race was not significantly related to attachment security, $t(83) = -.13, p = .90, d = .02$ or caregiving script scores, $t(83) = 1.61, p = .11, d = .34$. However, race was

marginally related to comforting scores, $t(83) = -1.87, p = .06, d = .40$, such that non-white children ($M = 2.93, SD = 1.55$) were marginally more comforting than white children ($M = 2.33, SD = 1.39$). Therefore, race was included in principal analyses.

Age was not significantly related to any of the study variables and was therefore not included in principal analyses.

Consistent with previous studies using doll story stem methods (Page & Bretherton, 2001), children's vocabulary ability was assessed as a covariate. Children's vocabulary score was significantly related to caregiving script scores, $F(1,86) = 7.42, p < .01, \eta^2 = .07$, and was therefore included in principal analyses as a covariate. Children's vocabulary score was not related attachment security, $F(1,86) = 0.51, p = .48, \eta^2 = .01$.

Finally, experimental factors, including the order of tasks and procedural errors, were tested for significant effects on the study variables. The order of tasks was not significantly related to any of study variables and was therefore not included in principal analyses.

Principal Analyses

All principal analyses were run using *R* statistical software Version 3.2.4 (R Core Team) using the *agricolae* (Mendiburu, 2015), *psych* (Revelle, 2015), and *lavaan* (Rosseel, 2012) packages. First, regression analyses with and without covariates included were run to test Hypothesis 1 and examine other main effects. In addition to main effects, interaction terms were created to investigate possible moderated relations between study variables and identified demographic variables. If attachment security was found to be a significant predictor, a *t*-test was run to compare organized and disorganized children. If the *t*-test was significant, Bonferroni-corrected post-hoc comparisons comparing the three classifications were used to test whether

specific groups were causing the differences. Finally, the indirect effect of Hypothesis 2 was tested using bias-corrected bootstrapping.

Attachment and Prosocial Comforting

Main effects. Children's comforting score was regressed on mean attachment security scores, controlling for child sex and child race. The model revealed a main effect of attachment security, $\beta = 0.46$, $t(84) = 3.59$, $p < .001$, $\eta^2 = .14$, and a main effect of sex, $\beta = 0.70$, $t(84) = 2.21$, $p < .05$, $\eta^2 = .05$, such that greater attachment security scores predicted greater comforting behavior and boys were more comforting than girls. Child race was marginally significant, $\beta = 0.55$, $t(84) = 1.86$, $p = .06$, $\eta^2 = .04$, such that that non-white children were marginally more comforting than white children. The model explained a significant proportion of variance, $R^2 = .18$, $F(3,84) = 6.04$, $p < .001$.

Interactions. None of the two- or three-way interactions were found to be significant.

Comparison of Classifications. Results of the t -test revealed significant differences between organized ($M = 2.80$, $SD = 1.48$) and disorganized participants ($M = 1.88$, $SD = 1.36$), $t(24) = 2.42$, $p < .05$, $\eta^2 = .10$. Post-hoc comparisons revealed a significant difference between children classified as secure and children classified as disorganized ($M_{Difference} = 1.04$, $p < .05$). No other comparisons were significant.

Attachment and Caregiving Scripts

Main effects. Children's mean caregiving script score was regressed on children's attachment security, controlling for sex and vocabulary scores. The model revealed a main effect of attachment security, $\beta = 0.12$, $t(84) = 6.06$, $p < .01$, $\eta^2 = .10$, and a main effect of vocabulary score, $\beta = 0.01$, $t(84) = 2.61$, $p < .01$, $\eta^2 = .07$, such that children who had greater vocabulary and

children with greater attachment security had greater caregiving script scores. Child sex did not significantly predict caregiving script scores, $\beta = -0.02$, $t(84) = -0.25$, $p = .81$, $\eta^2 < .01$.

Interactions. Attachment security did not significantly interact with child sex to predict children's caregiving script scores. However, testing of interactions with other demographic variables revealed a two-way Attachment x Child Race interaction, $\beta = 0.18$, $t(84) = 2.49$, $p < .01$, $\eta^2 = .07$, such that white children who were one standard deviation below the mean of attachment security reported greater caregiving script scores than non-white children who were one standard deviation below the mean of attachment security. Race did not interact with attachment security to predict caregiving script scores, when attachment security scores were one standard deviation above the mean (see Figure 2).

Comparison of Classifications. Results of the t -test revealed significant differences between organized ($M = 1.99$, $SD = 0.41$) and disorganized participants ($M = 1.71$, $SD = 0.46$), $t(21) = 2.20$, $p < .05$, $\eta^2 = .05$. Post-hoc comparisons revealed a significant difference between secure children and disorganized children ($M_{Difference} = 0.31$, $p < .05$). No other comparisons were significant.

Caregiving Scripts and Prosocial Comforting (Hypothesis 2: Caregiving Scripts will mediate the relation between attachment security and prosocial comforting)

Main effects. Comforting scores were regressed on caregiving script scores, controlling for child race and vocabulary scores. Caregiving scripts, $\beta = 0.34$, $t(81) = .92$, $p = .38$, $\eta^2 = .01$, did not significantly predict comforting scores, but race was a significant predictor of comforting. Non-white children had greater comforting scores than white children ($\beta = 0.73$, $t(81) = 2.00$, $p < .05$, $\eta^2 = .04$).

Interaction effects. No two- or three-way interactions were found to be significant.

Mediation of Attachment Security on Prosocial Comforting through Caregiving Scripts

For power considerations and due to missing data, covariates were excluded from mediational models. As noted previously, the Baron and Kenny (1986) method of testing indirect effects has the lowest statistical power. Bias corrected bootstrapping has been suggested as an empirical and more powerful method of testing indirect effects and so this method was utilized.

5000 bootstrap samples ($n = 88$) were created from the original data by random sampling with replacement. These samples were used to produce estimates of the path coefficients. Finally, an indirect effect of attachment security on prosocial comforting through caregiving script knowledge was calculated. The overall indirect effect can be concluded significant if the 95% confidence interval for the indirect effect does not include zero. Table 6 provides a summary of the bootstrap regression analysis. As can be seen, regression results revealed that the 95% CI around the indirect effect does include zero and therefore cannot be concluded to be significant. A path diagram showing the standardized parameter estimates can be found in Figure 3.

Chapter 4: Discussion

The aim of the current study was to examine the relation between children's attachment security and children's prosocial comforting in a community sample of preschool-aged children and investigate a novel mediator, namely caregiving scripts. I hypothesized that securely attached children would display more comforting behaviors and that caregiving script scores would mediate the relation between attachment security and comforting. Results of the study found that attachment security does positively predict comforting behavior (Path C) and caregiving script scores (Path A). However, results revealed that there was no relation between caregiving scripts and comforting behavior (Path B) and that the overall indirect effect was insignificant.

In the following sections, I will examine these findings in relation to previous studies. I will begin by discussing the three paths modeled for principal analyses. Then, begin by examining significant pathways. Next, I will consider limitations of the caregiving story task generally and in light of the null relation between caregiving scripts and prosocial comforting. Then, I will discuss secondary findings that emerged. Finally, I will discuss limitations of the study design and propose future directions, given the results of the study and status of the field.

Attachment and Prosocial Comforting

Consistent with previous studies (e.g., Van der Mark & van Ijzendoorn, 2002), the results of this study suggest attachment security does positively predict children's prosocial comforting behaviors (Path C), supporting hypothesis 1. Children with greater attachment security scores produced narratives in which the parents were positively involved in resolving problems encountered and these narratives were produced with minimal to no prompting necessary, consistent with other studies using doll story stems to measure attachment (Bretherton et al.,

1990). In the clipboard task, these children produced more comforting strategies, were more attuned to the target's distress, and showed less distress and negativity in response to the target's distress. These behaviors are consistent with research on attachment theory, which suggest that attachment security promotes children's emotion regulation skills and promotes the development of positive representations of the self, others, and the world (Main et al., 1985).

Additionally, results suggest that these effects are driven by differences between securely attached children and children with disorganized attachment. Children with disorganized attachment produced narratives that were characterized by themes of parental helplessness, parental violence, and/or death of family members. In the clipboard task, these children were more negative towards the distressed target and offered fewer strategies. This finding is consistent with previous studies, which find that, relative to children with organized strategies (including insecurely attached children), disorganized children are particularly at risk for negative outcomes (van Ijzendoorn et. al., 1999; Cassidy et. al., under review).

Attachment and Caregiving Script

Results suggest that attachment security does promote caregiving script scores (path A). In general, studies investigating mental representations of caregiving in childhood are limited, with no studies investigating links between attachment security and representations of caregiving in childhood. However, research on the relation between attachment and representations of caregiving in adulthood typically find that adults with secure attachment representations typically have more positive representations of caregiving, see themselves as competent caregivers, and use positive caregiving behaviors (Aber, Slade, Berger, Bresgi, & Kaplan, 1985). Insecurely attached caregivers have negative representations of themselves as caregivers and use more negative caregiving strategies (Aber et. al., 1985).

Additionally, studies find that attachment security promotes other social information processing skills in early childhood and beyond (for a review, see Dykas & Cassidy, 2011). When asked how others are feeling, securely attached children, relative to insecure children, are more capable of understanding other's emotions (Main et. al., 1985), their own emotions (Raikes & Thompson, 2006), and attribute peer's behavior to negative intentions (Cassidy, Kirsh, Scolton, & Parke, 1996; Raikes & Thompson, 2008). These social understandings are likely influential factors towards children's caregiving script knowledge. Emotional understanding facilitates empathy (Eisenberg et. al., 1991), which in turn promotes care for others (Eisenberg & Miller, 1987).

Given these two sets of studies, the current results are unsurprising. Importantly, the current results expand on the understanding of the caregiving behavioral system. A previous theory on the caregiving behavioral system suggests that, while a rudimentary caregiving system is present in early childhood, the system does not begin to fully develop until later in life (George & Solomon, 2008). In detecting individual differences in caregiving script knowledge related to attachment security, these results suggest that the caregiving system changes as a function of experience far earlier than previously hypothesized, which may have implications for the function of the caregiving system. Generally, theories about the caregiving system suggest that its function is to promote proximity to one's child. However, as children would not have the motivation of proximity to one's child, these results may suggest a more generalized caregiving system early in childhood. This rudimentary caregiving system may be interwoven with other social systems, such as the attachment and affiliative systems, which then becomes specific to child-care over time. Continued study of the caregiving system in childhood is necessary to understand the developmental trajectory of the caregiving system.

As with relations between attachment security and comforting, classification level analysis suggests that the relation between attachment security and caregiving script scores is driven by differences between children classified as securely attached and children classified as disorganized. Disorganized children produced caregiving narratives where friends stopped being friends or violent events occurred (i.e., the destroying the TV). These findings are consistent with studies of children with disorganized attachment. Children with disorganized attachment classifications typically exhibit more hostile aggression towards their peers than securely attached children (Lyons-Ruth et. al., 1993).

Finally, the relation between attachment security and caregiving scripts was qualified by a two-way interaction with child race, such that when comparing children one standard deviation below the mean of attachment security, white children reported greater caregiving script scores than non-white children. This may be driven by methodological considerations. In both doll stories, the dolls used were not race matched. Race is an important social category that young child are capable of tracking and using as an organizing schema (Aboud, 2003). However, studies typically find that preschool aged children do not make moral judgments on the basis of group membership (Killen & Stangor, 2001). Given this general trend, it seems unlikely that children are making decisions to provide care or not on the basis of the race of the doll.

Another possibility is that white and non-white children rely on different criteria for evaluating proper behavior in friendship contexts. Studies investigating correlates of sociometric popularity find that, while white children associate popularity with high prosociality and low aggressive reputations, black children do not associate low aggression with sociometric popularity (Kistner et. al., 1993). Other studies find that black children associated aggression and toughness with popularity (Rodkin et. al., 2000). It may be then, that within these story stems

between two friends, the non-white children saw aggressive responses as more appropriate, which would then bring their caregiving script score down.

Caregiving Scripts and Prosocial Comforting

The study found no main effect of caregiving scripts on prosocial comforting (path b), a surprising result given the observed associations to other study variables and conceptual similarity. As previously noted, there is no previous research to compare with or to help understand the lack of a clear relation between caregiving scripts and prosocial comforting. However, methodological considerations may clarify the null results.

First, it must be noted that floor effects were a problem. Although some children did provide care in their stories, a majority of the children were scored a 2, which reflected either avoiding the distressing event from the story stem provided by the experimenter or by having the distressed character resolve the distress on his/her own. One possible explanation for this lack of variability relates to the story stem content. In other similarly used story stems (Davidov & Grusec, 2006), the distress of the friend is communicated both verbally as part of the narrative and through doll play (e.g., doll placed sideways after falling in the story stem). However, in the current story stems used, distress was only communicated verbally. After verbally communicating the distress, distressed characters were then placed upright. It may be that because the distress was only communicated verbally, children did not perceive characters being particularly distressed and in need of care from others. Communicating the need for care more explicitly in the doll play may have helped increase variability of responses. However, this explanation does not account for the observed link between attachment security and caregiving story stems.

Floor effects may also have been the product of the relation between the two individuals in the caregiving story stems. For all four story stems, the distressed character was a friend of the protagonist. At four years old, children's friendships are more based in play than emotional closeness (Gifford-Smith & Brownell, 2003), the friendships children have are driven by their parents (Ladd & Hart, 1992), and interactions with friends typically occur in the presence of parents (Haight & Miller, 1992). Given these limitations in preschool aged children's experiences with friendship, it may be that children did not understand that there is an expectation of caring for one's friends. Rather, parents who are nearby take care of distressed friends. In this, the caregiving story stems may have been measuring individuals' experience with friendship rather than a generalized caregiving script.

Additionally, it may also be the case that the caregiving story task is not measuring caregiving scripts but is instead measuring some other construct. One possibility is emotion regulation capabilities. As mentioned, self-resolution and avoidance of the problem were two of the most common responses from children. Both responses, as well as care responses, reflect emotion regulation strategies by which children can control their own distress. On the other hand, scores of 1 or narratives where events became worse or violence was introduced, reflect a failure to regulate emotions. Comparisons of children's attachment classifications corroborate this interpretation. Children with organized attachments had significantly greater caregiving scripts than children with disorganized attachment. This would explain why attachment security predicts caregiving script scores, as attachment promotes emotion regulation skills (Cassidy, 1994). However, while emotion regulation may assist children in comforting, other social motivations may be necessary to actually produce comforting behaviors.

Finally, the care responses children typically gave in children's caregiving stories were frequently instrumental in nature. As noted in the results section, children's caregiving script scores for the dog story and the pool story were skewed, due to care provision being more rare. Children's caregiving script scores on the sleepover and lost toy stories did not have problematic skew, as care provision was more common in these stories. These story stems had obvious instrumental strategies (i.e. turning off TV and helping to find the toy) that did not require additional materials. The dog story stem did not have a quickly available instrumental responses and the instrumental responses in the swimming pool required materials that were not immediately present (i.e. giving a band aid). Studies investigating links between types of prosocial response are mixed with some finding that prosocial behaviors are linked (Hay, 1979), whereas others have found no correlation (Dunfield & Kuhlmeier, 2013). It may be the case that the caregiving script stories are measuring instrumental help, which may or may not relate to prosocial comforting.

Additional Findings

Three additional significant trends emerged that are noteworthy. First, girls were found to have greater attachment security scores than boys. Although sex is not usually associated with attachment security, some previous studies using the ASCT have found sex effects (Granot & Mayseless, 2012; Page & Bretherton, 2001), whereas others have not (Bureau & Moss, 2010; Cassidy, 1988; Verschueren et. al., 1999). Research on children's narrative practices finds that girls typically produce more coherent narratives (Laible & Thompson, 2002). Some researchers have hypothesized that narrative play is socialized more for girls than for boys (Laible et. al., 2004). This is consistent with studies investigating children's play with their parents and with peers (Lindsey & Mize, 2001). Parent-child dyads were videotaped playing together in both

pretense play and physical play. The study found that engagement with girls was greatest in pretense play, particularly in mother-daughter dyads, and father-son engagement was greater than father-daughter play in physical play contexts.

Others have suggested that gender differences in narrative measures of attachment security may be a function of vocabulary ability. Although links between sex and vocabulary are rare, when the effects are found, they tend to suggest that girls have greater vocabulary fluency, relative to boys (Hyde & Linn, 1988). However, current results do not corroborate this interpretation, as girls and boys did not differ in their vocabulary scores.

Second, vocabulary scores were related to children's caregiving scripts scores but were not related to attachment security scores. One possible reason for this observed results may be the mediums through which the distress is reported. In the attachment story stems, the distress is communicated both verbally and non-verbally (e.g., child faced down after falling). In the caregiving story stems, the distress is only communicated verbally. Therefore, it is possible that children with greater verbal fluency are more capable of understanding the distress, which in turn, may promote telling narratives where care is provided to the distressed. If the distress was communicated through more explicit, physical means, the observed association may not have been observed.

Another possibility relates to the length of the caregiving story stems. The mean word count for the caregiving stories was 119 but the mean word count for the attachment stories was 58. A few possible explanations follow from this difference. First, it may be that children with greater vocabulary fluency were more capable of tracking story details as a function of practice. Children with larger vocabularies have been likely been exposed to more words (Huttenlocker et. al., 1991) and one medium through which young children are typically exposed to words is

through storybooks (Robbins & Ehri, 1994). Children with wider vocabularies have parents who engage them in conversation and read more to them (Newman, 1996) and have more knowledge of children's storybooks (Senechal et. al., 1996). Therefore, they may also be better at following the story content. However, this explanation feels lack luster, as it does not adequately address the null relations between the attachment stories and vocabulary fluency.

A second and more likely explanation is that the observed relation is driven by task demands not explicitly measured by the task. For example, children's executive functioning skills likely contribute to their caregiving scores and vocabulary scores, as the tasks require the ability to control their impulses, pay attention to the task, and successfully complete it. Many children struggled with maintaining interest in the vocabulary task and required prompting to continue completing the task. Occasionally, children who wanted to be finished with the vocabulary task would intentionally give incorrect responses in order to end the task prematurely. These children will therefore have artificially lower scores than they might actually have deserved. Following the same logic, it could be that the children who struggle with controlling their attention in the vocabulary tasks may have also struggled with paying attention during the caregiving stories. If a child lost attention or decided not to follow the rules of the game, he/she would likely have lower scores than children who did follow the experimenter's story stem. Additionally, this explanation offers a possible account for the lack of relation between the attachment security scores and the vocabulary scores. As the attachment story stems are half the length of the caregiving story stems and have markers (i.e. distinct names for every character) to help track details, they may not have challenged children's attention or impulse control as much as the other tasks did.

Finally, when used as a control variable in models of the relation between attachment security and comforting behavior, a main effect of child sex was observed, such that boys were more comforting than girls. Generally, studies find that girls are more prosocial (Rydell, 2005), but others find no sex differences (Lieberman, 1977), suggesting that this finding is inconsistent with other studies. However, one study has found evidence of boys being more prosocial towards their peers than girls in preschool (Rehberg & Richman, 1989). Additionally, meta analyses suggest that sex differences in studies of children's empathy are possibly driven by method effects (Eisenberg & Lennon, 1983), with self-report methods suggesting girls are more empathic but observational methods suggest no sex differences. One possible explanation for this surprising finding relates to experimenter effects. In studies where children are responding to the distress of an experimenter, the experimenter is typically female (for examples, see Hastings et. al., 2000; Radke-Yarrow et. al., 1976). However, in the current study, the experimenter was male, which may have caused different responses. Gender effects may not have been observed in children higher in attachment security as these children felt comfortable approaching the distress, regardless of the experimenter's gender. However, for children who were lower in attachment security, regulating emotions is more challenging (Cassidy, 1994), which may have made approaching challenging. For these children, the experimenter's gender may have been a buffer or provided extra motivation. Young children typically prefer to interact with same-sex peers (Fabes, Martin, & Hanish, 2003). For those insecure males, the experimenter being male may have buffered against the regulation struggles and provided additional motivation to approach.

Limitations and Future Directions

This study is the first to investigate the proposed caregiving script as well as the proposition that caregiving scripts are a mechanism through which attachment security promotes

prosocial comforting. The study had many strengths. For one, the clipboard-comforting task was an effective task for measuring comforting behavior towards others. In the original study that used the task (Hastings, Rubin, & DeRose, 2005), the task lasted only 45 seconds and the child's mother was the target of comforting. Here, the clipboard task lasted two minutes and the target was a male experimenter, yet it was still effective and believable. Additionally, for both story tasks and for the clipboard task, over 70% of cases were double coded with coders achieving high degrees of reliability, which lends credence to the veracity of the data.

However, there were a number of limitations worth mentioning. First, although the dolls used in both sets of story stems were gender matched to the participant's gender, dolls were not race matched. As previously mentioned, race is an important social cue that preschool aged children use to categorize people in social groups (Aboud, 1992). Research on children's social reasoning suggests that out-group based reasoning does not typically appear until later in life (Killen & Stangor, 2001). Although preschool aged children may not make social judgments on the basis of out-group membership, it may have had adverse effects on children's identification with the dolls used. In turn, this may have had unknown consequences for children's story scores. Additionally, although preschool aged children do have interracial friendships, they typically prefer friends of the same-race (for review, see Graham, Taylor, Ho, 2009). In light of the friendship context in which each of the caregiving story stems occurred, this limitation is particularly problematic. Future studies should consider using both gender and race-matched dolls to control for these influences.

Second, an important direction for future studies to explore would be to test the caregiving story task at other ages. A key limitation of the caregiving story task was that each dyad was the protagonist and a friend. At four years old, social interactions where friends are

made are organized and monitored by parents (Ladd & Hart, 1992). In this context, caregiving may be rare. Testing the caregiving story task in older children may provide more opportunity for variability in children's story narratives. Additionally, testing in older children may also protect against the cognitive demands associated with the caregiving stories.

Third, the study was limited by a relatively small sample. Detecting indirect effects often requires large sample sizes (MacKinnon et. al., 2007) and in this study, the bare minimum sample size to detect an indirect effect was used (Fritz & MacKinnon, 2007). It may be that a true indirect effect could have been detected had the sample size been larger. Future studies wanting to investigate indirect effects would be helped by having a larger sample.

Although evidence of caregiving script knowledge as a mechanism through which attachment security promotes prosocial comforting was not found, the caregiving stories stem task shows promise for future research. Future studies should consider other outcomes related to care provision. As noted, the most common care responses in children's narratives were instrumental in nature and many children failed to provide care in the dog story stem, where instrumental strategies are not immediately clear. It may be possible then that responses on the caregiving script knowledge relates to other prosocial behaviors, such as helping, which is more instrumental in nature.

Finally, future studies using the caregiving script story stems may be able to clarify whether other factors, such as friendship quality or sociometric ratings, are being measured or confounding results using the caregiving story stems. Future studies might ask mothers how often their child has play dates or how many friends their child has, which could help clarify whether the caregiving story stem task is actually measuring caregiving script knowledge or if they are tapping representations of friendship interactions.

Conclusion

The aim of the current study was to examine the relation between children's attachment security and children's prosocial comforting and to investigate caregiving scripts as a novel mediator, explaining the relation between attachment security and prosocial comforting. Results found that while hypothesis 1 was supported, hypothesis 2 (Indirect effect) was not supported. Although the hypothesis of the indirect effect was not supported, the study shows promising results for the study of children's social representations and their relation to prosocial behavior. The study adds to large body of literature that consistently finds links between attachment and prosocial behavior and proposes a novel mediator, which shows promise. Future studies will be able to further understand caregiving scripts and may be able to clarify the relation between the two study predictors and prosocial comforting. Identifying and understanding predictors of prosocial behavior is critical for promoting positive development in children and beyond.

Appendices

Appendix A: IRB Approval Letter



1204 Marie Mount Hall
College Park, MD 20742-5125
TEL 301.405.4212
FAX 301.314.1475
irb@umd.edu
www.unresearch.umd.edu/IRB

DATE: June 5, 2015

TO: Jude Cassidy, PhD
FROM: University of Maryland College Park (UMCP) IRB

PROJECT TITLE: [650635-1] Attachment and Prosocial Behavior in Preschool Children
REFERENCE #:
SUBMISSION TYPE: New Project

ACTION: APPROVED
APPROVAL DATE: June 5, 2015
EXPIRATION DATE: June 4, 2016
REVIEW TYPE: Expedited Review

REVIEW CATEGORY: Expedited review category # 4 & 7

Thank you for your submission of New Project materials for this project. The University of Maryland College Park (UMCP) IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

Prior to submission to the IRB Office, this project received scientific review from the departmental IRB Liaison.

This submission has received Expedited Review based on the applicable federal regulations.

This project has been determined to be a Minimal Risk project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of June 4, 2016.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Unless a consent waiver or alteration has been approved, Federal regulations require that each participant receives a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please use the appropriate revision forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others (UPIRSOs) and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please use the appropriate reporting forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

Appendix B: Attachment Story Completion Task Story Stems

Introduce each character and then go right in to story.

Warm Up Story

“Here’s their table and what’s this?” (show cake to subject and wait for subject to name it).

“What kind of cake? Yes, it’s a birthday cake. Now listen carefully to the story.

The mommy has baked this beautiful birthday cake

and she says: “Come on grandma, come on Dad, come on Jane, let’s have a birthday party.”

“Show me what happens now.”

Prompts

- No prompts

AT END OF STORY TAKE ALL BACK

Spilled Juice

“Ok I have a new story.”

“Can you put the family around the dinner table so they’re ready to eat?

Ok here’s the story.

Our family is eating dinner and Bob (Jane) get up and reaches and spills his juice.

And Mom says “Bob (Jane) you spilled your juice!” (Reproachful tone)

“Show me what happens now.”

Prompts

- If not spontaneous: “What do they do about the spilled juice?”
- If 1 response: “Anything else?”
- If ambiguous pronoun “Who did”

Hurt Knee (felt grass, sponge for rock)

“Ok I have another story. You put our family there and get them ready for the next one while I put these away.”

“Ok look what I’ve got. This is the park. Do you sometimes go to the park with your mom and dad? (pause)

Here is our family and they’re out walking in the park, and at this park there is this high rock.”

The child says “Look mommy and daddy. Watch me climb this high rock.” (Make child climb then fall off).

“Ouch! I’ve hurt my knee (crying voice).

Show me what happens now

Prompts

- If not mention knee: “What do they do about the hurt knee?”
- If 1 response: “Anything else?”
- If ambiguous pronoun “Who did”

Monster in the bedroom

“Look what happens now.

Mom says “It’s bedtime go up to your room and go to bed.”

And the dad says “Go to bed now.”

The child says “Ok mommy and daddy and I’m going” (make figure walk to bed). The child gets in bed

And he says “Mommy! Daddy! There’s a monster in my room! (Alarmed voice)”

Show and tell me what happens now

Prompts

- If not mention spontaneously: “What do they do about the monster?”
- If 1 response: “Anything else?”
- If ambiguous pronoun “Who did”

Departure

“Let’s use grandmother this time.

Here we have their front lawn, and here we have their car, this is the family car.

And you know what? It looks like mommy and daddy are going on a trip.”

Mom says “Ok boys (girls) Your dad and I are going on a trip.

We are leaving on our trip now.”

Dad says “See you tomorrow. Grandma will stay with you” Why don’t you have them drive off this way?

Show me what happens now.

Prompts

- If not mention mom and dad leave: “What does Bob do while mom and dad are gone?”

- If 1 response: “Anything else?”
- If ambiguous pronoun “Who did”

TURN CAR AROUND

Reunion

OK and you know what?

It’s the next day and grandma looks out of the window

and she goes “Look boys (girls), here come your mommy and daddy. They’re home from their trip.”

Show me what happens now.

Prompts

- If not mention reunion: “What do they do now that mom and dad are home?”
- If child asks for other props, give to them
- If 1 response: “Anything else?”
- If ambiguous pronoun “Who did”

Attachment Story Completion Task (ASCT)

Coding Manual 6/26/16 – Used for coding

Description of the task

Using doll figures, the experimenter sets up five story stems: (1) Birthday (used as a warm-up task), (2) Spilled Juice, (3) Hurt Knee, (4) Monster, and (5) Separation/Reunion. After each story stem, the experimenter asks the child to “show and tell me what happens next.” Children’s responses are video-recorded.

The task of the coder is to interpret the child’s verbal and behavioral (doll play) responses in terms of their underlying attachment representations—that is, their internal working model of themselves and their relationship with their attachment figures. Note that in the current system, only 3 stories are coded for attachment: Knee, Monster, and Separation.

I. Overview of Coding Procedure

1. Watch each story *at least 3 times*, taking **detailed notes** on the child’s ACTIONS (including all doll play and child behavior) and all STATEMENTS (including the experimenter’s prompts and the child’s verbatim responses). Use the Transcription Instructions below.

** NOTE: If you can't understand what the child is saying/ doing, repeat the recording as many times as needed, and watch the recording from the other camera angle. Do not assume what the child said/ does!*

Transcription Instructions

In the large box on your coding sheet, give a detailed description of the child’s actions and statements. Use *initials* to indicate who is speaking/ acting:

- E = Experimenter (David)
- P = Child Participant
- C = Child doll
- M = Mom
- D = Dad
- G = Grandma

Use the following tools to make your transcripts as clear as possible:

- | | <u>EXAMPLE</u> |
|--|---|
| – Write all ACTIONS in plain text, using initials to indicate who is doing what. | P moves M closer to C, so they are standing side by side. |
| – Write all STATEMENTS in quotes, using initials to indicate the speaker.**
Include statements by the experimenter. | M: “Let’s go home, Jane.”
E: “Mom says let’s go home? Okay.” |
| – Use “P2” to indicate Prompt 2, if given. | E: P2 |
| – Use a wavy underline to indicate statements you are unsure about. | P: “They go home and <u>clean it up.</u> ” |
| – Use “XXX” to indicate statements you can’t hear or are uninterpretable even after several listens. | P: “And then Jane goes outside and XXX.” |

***NOTE: If you have written dialogue and have no wavy line underneath it, that indicates full confidence in what you heard. If there’s any doubt, put a wavy line under it.*

2. Once you have a detailed transcript, **fill in the Yes/No (“0/1”) questions** on the coding sheet—these will help you hone in on key indicators of security and insecurity, as well as experimenter prompts and errors. These questions include:

- **Problem resolved:** Child successfully resolves central story issue
 - *Knee:* something is done to help knee feel better
 - *Monster:* something is done to make monster a non-threat or to make child feel safe
 - *Separation/Reunion:* child and parents do something to reestablish connection after separation
- **Parent positively involved:** Do parents help to resolve story issue/make things better—i.e., provide HELP, PROTECTION, COMFORT, REASSURANCE or VALIDATION? Are parents generally portrayed as “bigger, stronger, wiser, kind”?
- **Avoidance present:** Are any indicators of avoidance present—i.e., child denies/ minimizes/ dismisses/ avoids discussing distress or story issue, ends story prematurely or refuses to complete story, resolves story in superficial way, or resolves story independently/ without help from parents?
- **Disorganization present:** Are any indicators of disorganization present—i.e., incoherence, themes of violence/ chaos/ death/ helplessness, addition of *unresolved problems*, parents threatening OR helpless, child freezing/stilling?

3. After watching a story, take a step back and ask yourself, “In general, **do things get better, stay the same, or get worse?** Ultimately, *do things end well* in this story?” In very broad terms:
 - A *secure* representation involves things getting better and ultimately ending well due to the help of a caregiver.
 - An *avoidant* representation involves things staying the same, going unaddressed, or getting superficially better without meaningful help from a caregiver.
 - A *disorganized* representation involves things getting worse OR initially getting better but ultimately ending badly, often with a caregiver unable to provide help.
4. Assign a **security score** on a scale of 1 to 5 for each story and provide a brief justification for your score. This justification is to remind yourself of your decision process for discussion in coding meetings. Your scores should be based on:
 - a. your notes about the child’s statements and behavior
 - b. the “0/1” indicators on your coding sheet
 - c. ****the scoring descriptions defined in THIS MANUAL (pp. 5-12)****

Example justification: “4” – Knee is resolved w/ mom giving band-aid, but only after prompt 2; has proximity + pos parental involvement. Not a 5 due to lack of spontaneity.

NOTE: Occasionally, a video problem or experimenter error(s) will make a story uncodable (e.g., dolls are not visible from either camera OR the experimenter skips prompt that might influence a child’s score). If you think a story might be uncodable, make a note on your coding sheet, put a post-it on the sheet, and bring this case to coding meeting to discuss. However, if at all possible, **assign a score using whatever information you have. It’s better to err on the side of coding what you have (rather than having lots of missing data). We will make the determination about whether to include it in the meeting.*

5. Assign a **classification** for each story. Classifications can be Secure, Avoidant, or Disorganized. Classifications reflect the child’s overarching STRATEGY for managing distress in the story. They are based on:
 - a. your security scores; typically, a security score of 1 indicates disorganization, 2 indicates avoidance, and 3-5 indicate security.
 - b. ****the classification descriptions defined in THIS MANUAL (p. 13)****
6. After coding all stories for a child, fill out the front page of your coding sheet, taking note of the child’s overall quality of interaction with the experimenter (see next page). Then, calculate a **summary score** for each child by taking the MEAN of security scores across the 3 stories (range: 1 – 5).

7. Finally, assign an **overall classification** by taking the MODAL CLASSIFICATION (most frequently occurring) across the 3 stories. If there is no modal classification:
 - a. Consider whether there is a primary/ dominant strategy that the child uses to deal with distress. Justify your assessment by referring to the classification descriptions.
 - b. If the child's scores on Knee and Monster are borderline (2-3) OR if no consistent picture emerges in the first 2 stories OR if 1 story is uncodable, *weight Separation/Reunion most highly* in your determination.¹
 - c. If the child strongly demonstrates multiple strategies with no clear dominant strategy, consider assigning "Cannot Classify."
 - d. **Conference with your coding team to make decisions regarding hard-to-classify children.**

In addition, track the child's **overall quality of interaction** with the experimenter and overall demeanor you watch. Pay particular attention to these 3 elements:

1. COLLABORATION – In general, does child **cooperate with the rules** of the story task and engage constructively with experimenter to create a story?
→ Collaboration is a hallmark of child security. If a child is *non-collaborative* or appears annoyed or exasperated with the experimenter's requests, it may reflect aversion to discussing attachment themes (avoidance). If a child is actively *hostile* or *controlling* toward the experimenter, it may indicate disorganization.
2. SHYNESS – Does the child appear initially inhibited or quiet, *but nevertheless engage fully in the story task*? Shyness is part of children's temperament and should NOT influence your scoring of attachment. If a child is shy, note it on your coding sheet to make sure that a child's shyness does not bias your scoring. In particular, shyness should be distinguished from *fearfulness*, described below.
3. FEARFULNESS – Does child appear fearful (i.e., anxious, rigid, passive, or withdrawn) throughout, such that *fear interferes with his/her ability to complete the task/ create coherent stories*? If a child appears actively afraid of the experimenter or the task (e.g., by refusing to touch/ play with the dolls or offering only 1 or 2 words in response to a prompt), review the child's stories for other "red flags" and consider an overall classification of disorganized.

¹ We decided to give most weight to Separation/Reunion for the following reasons: (1) it offers the most attachment content, because it includes 2 parts and more prompts by the experimenter; (2) it maps on most closely to other procedures used to measure attachment in this age group (e.g., reunion procedures, preschool SSP); (3) other researchers have used this story by itself to assess children's attachment (e.g., Main et al., 1985); and (4) it occurs last, giving children ample time to warm up to the experimenter and become familiar with the task.

II. Security Scores

Following Cassidy (1988) and others (e.g., Verschueren & Marcoen, 1999), we will score individual stories on a scale from 1 to 5, with the most secure stories receiving a 5. Scale points are defined below for each story (based Main et al., 1985; Bretherton et al., 1990).

General notes:

insecure	1	<p>Stories with <u>any</u> indicators of disorganization, however brief (e.g., 2-3 sec), receive an automatic score of 1, regardless of other content. Indicators of disorganization include:</p> <ul style="list-style-type: none"> a. CONTENT: themes of violence, chaos, death, helplessness, or bizarre elements, incoherence (i.e., lapses in logic, odd statements unrelated to story); and/or b. BEHAVIOR: participant freezing/ stilling/ passivity/ dissociation, odd or repetitive body movements or doll play, may be controlling toward experimenter <p><i>*Be careful NOT to confuse with regular 4-year-old behavior! Only score disorganization (b) IF it is very overt OR if it occurs in combination with (a)</i></p>
	2	<p>A 2 is characterized by:</p> <ul style="list-style-type: none"> • overly brief, casual, or stereotyped, with minimal detail, IF ALSO accompanied by one or more of the following: • no helpful parental involvement (may involve DECREASE in proximity to parent) • child overly independent – child resolves problem on his/her own • denial of problem or distress • premature closure – problem is resolved superficially or by skipping over issue • refusal to engage (e.g., silence/shrug, “I don’t know,” “nothing,” “next story,” “the end”) <p><i>*A “2” may ultimately resolve the story issue, but do so in an avoidant way (e.g., child resolves problem alone, resolution is casual/ dismissing, <u>sense that child wants to get story over with</u>)</i></p>
<p>Scores of 3 and above MUST include:</p> <ul style="list-style-type: none"> a) RESOLUTION OF PROBLEM: Things get better/ end well. b) COHERENCE: child’s response is logical, well communicated, not overly digressive nor overly brief 		
weak secure	3	<p>A 3 involves:</p> <ul style="list-style-type: none"> • simple story resolutions – little detail/elaboration, but ultimately story “gets the job done” of resolving problem/distress. • parents involved – parents must be involved in some way, even if minimal or instrumental, with other person providing ultimate help (e.g., parent drives child to doctor, calls police about monster); involvement is not high-quality (no emotional comfort or check-ins) • resolution without spontaneity – problem is resolved, but only after 2nd prompt; OR spontaneous resolution after initial avoidance – child resolves problem after 1st prompt, but initially shows 1-2 characteristics of a “2” (e.g., decreasing proximity)
secure	4	<p>A 4 resolves the story problem with more elaboration 3; THAT IS, the story includes 1-2 of the characteristics of a 5 (see below).</p>
	5	<p>A 5 involves spontaneity – child resolves problem without requiring the 2nd prompt, PLUS AT LEAST 2 OF THE FOLLOWING:</p> <ul style="list-style-type: none"> • positive parental involvement – <u>parents provide help/ comfort/ protection</u> • proximity - child seeks parent to help resolve distress OR parent comes to child OR dolls are placed together (e.g., side by side, hugging, leaning in, facing each other); participant may also make hugging gesture him/herself • emotional openness – child <u>openly expresses positive and negative affect</u> appropriate to the story, either explicitly or implicitly, OR <u>parents validate</u> child’s emotions <p><i>*Resolution & parental involvement must be CLEAR in order to get a “5.” If central aspects are ambiguous, consider a “4” instead.</i></p>

HURT KNEE

1 Any of the following indicators of disorganization warrants an **automatic 1**:

CONTENT

- **Problem unresolved OR resolved but followed by negative events**
Examples: Parent punishes child for getting hurt (NOT resolved)
“They put on a band-aid and then they lock him up.” (resolved + negative event)
- **Violence, chaos, helplessness** (anything that worsens child’s fear)
Examples: Rock falls on Dad repeatedly. (violence)
Parents fall down and cry. (helplessness)
- **Incoherence**
Example: “He goes—Alligator!.”

BEHAVIOR

- **Freezing/** stilling/ passivity/ dissociation
- **Odd or repetitive body movements** or doll play
Examples: Participant flicks child doll back and forth repeatedly.

2 A **2** is characterized by:

- **overly brief**, casual, stereotyped, or superficial, with minimal detail
Examples: [After several prompts] “Um... Band-aid?” [E: Who puts on a band-aid?] “I don’t know.” (casual/ stereotyped)
[Participant brushes off child’s knee] “Wipe, wipe, all done.” (brief/ superficial)
**To warrant a “2,” brevity must ALSO accompanied by at least one of the following:*
 - **no helpful parental involvement** – parents not involved or not helpful
Examples: “The parents stand there and don’t do anything.” (uninvolved)
Mom says, “Let’s go on the swings” without acknowledging knee or providing comfort (involved but unhelpful)
 - **child overly independent** – child resolves hurt knee on his/her own
Examples: “Bob gets a band-aid.”
“Jane cleans it up.”
 - **denial** – distress and/ or knee issue is denied or skipped over
Example: “Jane goes and plays on the slide.” [E: “What do they do about the knee?”]
“Nothing. It’s better.”
 - **premature closure/refusal to engage** – refusal even after several prompts, attempts to escape story context, or oppositional toward E.
Example: Child repeatedly says “I don’t know”/ shrugs for multiple prompts
-

CUTOFF FOR SECURITY: Scores of **3 and above** MUST show:

- **coherence** – child’s response is logical, well communicated, neither overly digressive nor overly brief (i.e., 1- to 2-word stories)
- **parental involvement** – parents involved in resolving knee, even if minimal.
- **resolution of problem** – participant must resolve problem of knee; *Includes*:
 - Giving/ applying band-aid – must involve 1 or more parents
Example: “The mom puts a band-aid on it.”
 - PROXIMITY
Examples: Parents approach child to apply band-aid or give hug.
Child goes to parents for help with knee.
“Mom and Jane sit down for awhile.”
 - COMFORT/ check-in
Example: “The mommy gives it a kiss.” (comfort)
“The daddy says, ‘Are you ok?’ and Bob says ‘Yes, I’m ok.’” (check in)
“The mom says, ‘It will be ok, just rest for a minute.’” (comfort)
**NOTE: When distinguishing between comfort and minimizing, pay attention to TONE (soothing tone indicates comfort/ negative tone may indicate dismissal)*

Does NOT include: someone other than parents helping with knee (e.g., Superman, stranger, doctor—UNLESS parents are involved in taking child to doctor),
NOR any responses described under a “1” or a “2” above.

3 A 3 involves:

- **resolution without spontaneity** – knee is resolved, but only after Prompt 2 (i.e., any of the resolutions listed above that occur AFTER experimenter says, “What do they do about the knee?”) OR **spontaneous resolution after initial avoidance**
- **simple story resolutions** – little detail/elaboration/emotional openness, no proximity, but ultimately story “gets the job done” of addressing knee
Example: [E: “What do they do about the knee?”] “They clean it.”/ “The daddy helps.”

4 A 4 involves resolution with more elaboration 3; THAT IS, story includes 1-2 of the characteristics of a 5 (see below).
A 4 may or may not require Prompt 2.

5 A 5 includes **spontaneity** – child resolves knee without requiring Prompt 2

Example: Parents immediately apply band-aid

PLUS AT LEAST 2 OF THE FOLLOWING:

- **positive parental involvement** – especially rich/ elaborative help from parent
Example: “The daddy comes over and helps her up, and then he carries Jane to the top of the rock.”
 - **proximity** – child seeks parent to help with knee OR parent comes to child to help OR dolls are moved close together (*see examples above*)
 - **emotional openness** – parent validates child’s experience/ distress OR child expresses feeling better after comfort
Examples: “The daddy gives a hug and Bob feels better.”
“Then mom climbs the rock and says, ‘You’re right! This IS a high rock.’”
-

MONSTER

1 Any of the following indicators of disorganization warrants an **automatic 1**:

CONTENT

- **Problem unresolved OR resolved but followed by negative events**
Examples: “Jane hides but the monster finds her.” (NOT resolved)
“The dad kills the monster, but then they get captured.” (resolved + negative event)
- **Violence, chaos, helplessness** (anything that worsens child’s fear)
Examples: “The monster eats him.” (violence)
Parents hide under the bed and leave child in danger. (helplessness)
“The Dad is the monster.” (bizarre/ frightening)
- **Incoherence**
Example: “Eat... Fall down.”

BEHAVIOR

- **Freezing/** stilling/ passivity/ dissociation
- **Odd or repetitive body movements** or doll play
Examples: Participant looms over child doll and growls/ pretends to be monster.

2 A **2** is characterized by:

- **overly brief**, casual, stereotyped, or superficial, with minimal detail
Examples: [After several prompts] Participant flips dad doll around the floor and says, “Blah, blah, they fight the monster, the end.” (casual)
“It goes away.” (superficial)
**To warrant a “2,” brevity must ALSO accompanied by at least one of the following:*
 - **no helpful parental involvement** – parents not involved or not helpful
Examples: No mention of parents AND no movement of parent dolls. (uninvolved)
Mom says, “Go back to sleep” without acknowledging monster or providing comfort (involved but unhelpful)
 - **child overly independent** – child resolves monster problem on his/her own
Examples: “Jane fights the monster”
“Bob closes the door so he can’t see any more shadows.”
 - **denial** – fear and/ or monster is denied or problem is skipped over
Example: “Bob goes to sleep because there’s no monster.”
 - **premature closure/refusal to engage** – refusal even after several prompts, attempts to escape story context, or oppositional toward E.
Example: Child repeatedly says “I don’t know”/ shrugs for multiple prompts
-

CUTOFF FOR SECURITY: Scores of **3 and above** MUST show:

- **coherence** – child’s response is logical, well communicated, neither overly digressive nor overly brief (i.e., 1- to 2-word stories)
- **parental involvement** – parents involved in resolving monster, even if minimal.
Example: “The family fights the monster.”
- **resolution of problem** – participant must resolve problem of monster; *Includes:*
 - Fighting/ defeating monster – must involve 1 or more parents
Examples: Dad makes karate noises as he fights monster.
“The mama convinces the monster to be good.”
 - PROXIMITY/ protection
Examples: Child runs out of room and goes to parents.
Parents come to child’s room and hide child under a blanket.
“Jane goes and sleeps in her parents’ room.”
 - COMFORT/ reassurance
Example: Dad says, “Don’t worry. It’s just bad dreams.”
**NOTE: When distinguishing between comfort and minimizing, pay attention to TONE (soothing tone indicates comfort/ negative tone may indicate dismissal)*

Does NOT include: child escaping alone, someone other than parents defeating monster (e.g., Batman), NOR any responses described under a “1” or a “2” above.

3 A **3** involves:

- **resolution without spontaneity** – monster is resolved, but only after Prompt 2 (i.e., any of the resolutions listed above that occur AFTER experimenter says, “What do they do about the monster?”) OR **spontaneous resolution after initial avoidance**
- **simple story resolutions** – little detail/elaboration/emotional openness, no proximity, but ultimately story “gets the job done” of defeating monster
Example: [E: “What do they do about the monster?”] “They fight it.” [E: “Anything else?”] “No.”

4 A **4** involves resolution with more elaboration 3; THAT IS, story includes 1-2 of the characteristics of a 5 (see below).
A 4 may or may not require Prompt 2.

5 A **5** includes **spontaneity** – child resolves monster without requiring Prompt 2

Example: Parents immediately come to whisk Jane out of the room.

PLUS AT LEAST 2 OF THE FOLLOWING:

- **positive parental involvement** – especially rich/ elaborative help from parent
Examples: “The Dad comes in and fights the monster—hi-ya! And then he tucks Bob in so he can go to sleep.”
Family moves to a new house with no more monsters.
 - **proximity** – child seeks parent to help with monster OR parent comes to child to help OR dolls are moved close together (*see examples above*)
 - **emotional openness**– child expresses fear directly to parent OR parent validates child’s fear OR parent comforts child and child “feels better”
Examples: No monster, but parents sleep in child’s room “just in case.”
Dad looks for monster and says, “You’re right, there IS a monster!”
-

SEPARATION/REUNION

This story has 2 parts—Separation and Reunion—each of which has its own experimenter Prompt 1 (“Show and tell me what happens next”). **The central focus of coding is what happens during the reunion, when the parents return.** However, the separation gives valuable information, so you should also **track what is going on during the separation**, as certain elements will influence your final score. Key separation elements are listed on this page, and scoring criteria for Reunion are on the following page.

**NOTE: On your coding sheet, Prompt 1 and Prompt 2 refer to experimenter prompts given during Reunion only. Prompts given during Separation do not affect scoring.*

SEPARATION

**If child shows “neutral” or “positive” coping assign a “1” to the “SEP_COPE question.*

Positive separation elements

- Especially ELABORATIVE/CONSTRUCTIVE coping
Examples: “Bob and Grandma play with everything. They make cookies and milk and do all sorts of things.”
“Grandma says, ‘Come on, Bob. Let’s do some exercises! Stretch out!’”
- Active PROTEST of separation
Examples: Jane repeatedly yells “Mommy! Daddy!” when parents leave.
Bob tries repeatedly to get in the car with parents as they drive away.
Jane “sneaks off to get Mom and Dad”
Jane “cries and stamps her foot” as parents leave
- Open expression of SADNESS in response to separation
Examples: “Jane is sad.”
“Bob says ‘I’m sad,’ and Grandma says, ‘It’s ok.’”

Neutral separation elements

- BASIC COPING
Examples: “Jane and Grandma go to sleep.”
“They just wait.” “They play games.”
“Grandma takes Jane to the park.” “Bob plays with his toys.”

Negative separation elements – subtract -1 from child’s score if any are present:

- NEGATIVE EVENT occurs during separation that is not resolved
Examples: “Then a tornado comes and Bob is scared.”
“Jane hears a noise and can’t sleep the whole night.”
“Bob and Grandma fight.”
“Grandma drives away and leaves him.”
→ *NOTE: If any overt indicators of DISORGANIZATION are present during separation, it overrides all other content, including reunion, and story receives an **automatic “1”***
- NO COPING (child & grandma do nothing)
Examples: E: “What do Bob and Grandma do while Mom and Dad are gone?”
P: “Nothing.” / “I don’t know.” / Shrugs/ “They stay.”

REUNION

After noting positive, neutral, or negative elements of the separation, assess the REUNION. Add or subtract Separation points as needed in making your final score.

1 Any of the following indicators of disorganization warrants an **automatic 1**:

CONTENT

- **Problem unresolved OR resolved but followed by negative events**
Examples: Parents get in car crash and Jane stomps on the car. (NOT resolved)
Family has positive reunion, but then Dad hits Bob. (resolved + negative event)
- **Violence, chaos, helplessness, or bizarre elements**
Examples: Parents explode and “there’s blood everywhere.” (violence/ chaos)
Car runs over Grandma. (violence)
Child begins to approach parents but “falls down and can’t get up.” (helplessness)
- **Incoherence**
Example: “But then Bob is a baby and he cries and cries.”

BEHAVIOR

- **Freezing/ stilling/ passivity/ dissociation**
Example: During reunion, participant freezes and stares blankly for a few seconds.
- **Odd or repetitive body movements** or doll play
Examples: Child approaches family for reunion, but then falls and gets hurt.
Participant hits child’s head against the car repeatedly.

2 A 2 is characterized by:

- **overly brief**, casual, or stereotyped, with minimal detail
Example: “They just go home.” [E: “Anything else?”] “No.”
**To warrant a “2,” brevity must ALSO accompanied by one of the following:*
- **no/minimal reintegration with family** – no greeting or physical contact; child does not seek proximity
 - No reintegration
Examples: Child gets in car and drives away by himself.
Mom and Dad go on another trip without child.
 - OR family engages in casual/ stereotyped tasks
Examples: “They play games.”
“They eat dinner.”
- **refusal to engage/premature closure** – refusal even after several prompts, attempts to escape story context, or oppositional toward E.
Examples: “I don’t know.”/ “Nothing.”/ Child shrugs
“The end.” Child pushes toys toward E. “I want it to be the end!”

CUTOFF FOR SECURITY: Scores of **3 and above** MUST show:

- **coherence** – child’s response is logical, well communicated, neither overly digressive nor overly brief (i.e., 1- to 2-word stories)
- **resolution of problem** – child must re-establish connection w/ family; *Includes:*
 - Verbal greeting/ acknowledgement of separation
Examples: Child says “Hi. I missed you.”
Dad says, “Did you have fun with Grandma?”
 - Nonverbal greeting/ PROXIMITY
Examples: Dad leans in and gives Bob a kiss.
Participant moves parents closer to child doll so they’re face-to-face.
Participant gathers family together in his/her hands as if embracing.
Child makes hugging gesture toward him/herself.
 - Special joint activity (especially if suggesting enthusiasm/ joy)
Example: “They all go on a trip together.”

Does NOT include: child solo activities or activities only with Grandma
NOR any behavior described under a “1” or a “2” above.

3 A **3** involves:

- **resolution without spontaneity** – child reintegrates w/ family, but only after 2nd prompt (i.e., any of the resolutions listed above that occur AFTER experimenter says, “What does Bob do now that Mom and Dad are home?”) OR **spontaneous resolution after initial avoidance**
- **simple story resolutions** – little detail/elaboration/emotional openness, no proximity, but ultimately story “gets the job done” of re-establishing w/ family
Example: [E: “What does Jane do now that Mom and Dad are home?”] P: “They go home and eat cake.”

4 A **4** involves resolution with more elaboration 3; THAT IS, story includes 1-2 of the characteristics of a 5 (see below).
A 4 may or may not require Prompt 2.

5 A **5** includes **spontaneity** – child resolves problem without requiring Prompt 2

Example: Parents immediately get out of car and hug Bob.

PLUS AT LEAST 2 OF THE FOLLOWING:

- **positive reintegration w/ family** – child reconnects with family, often with clear sense of “togetherness.”
Examples: “They all go to the park and have a picnic and the Mom gives Bob a kiss.”
“Daddy and Jane play together with Jane’s favorite doll.”
 - **proximity** – child GREETs parent/ seeks proximity OR parents greet/ come to child OR dolls moved close together OR child makes hugging gesture (*see examples above*)
 - **emotional openness** – child expresses sadness/ protest upon separation AND/OR joy upon reunion (can be explicit or implicit)
Examples: “Jane is sad that Mom and Dad are gone.” (explicit)
“Mom says, ‘We missed you, Jane!’” (explicit)
“Bob says ‘Yay!’ and throws a thousand parties.” (implicit)
-

III. Classification Descriptions

SECURE/CONFIDENT (B)

- **Structure:** coherent, fluent presentation, collaborative w/ experimenter, emotional openness, completes task with minimal resistance or stress
- **Content:** benign story resolutions, positive and open interactions with a responsive caregiver, distress is acknowledged and resolved; characters show mutual support and enjoyment; reintegration into the family
 - **Child:** confident, valuable, worthy, capable of both acknowledging fear/distress and acting bravely, usually with the support of caregiver(s)
 - **Parent:** available, reliable, valued, helpful, provides safety/protection and comfort/reassurance; may sometimes be portrayed as a superhero
 - **Outcome:** Generally positive AFTER distress has been recognized
- **Play:** elaborated; child and one or both parent dolls are involved; sense of “togetherness” with placement and movement of figures (e.g., dolls placed in prox. or contact with one another, child doll not left out/left behind, except in Separation)
- **Overall strategy:** use parents as secure base to help regulate distress

AVOIDANT/CASUAL (A)

- **Structure:** brief, stereotyped, with experimenter doing most of the work, sometimes in Q&A format; little detail or elaboration; may be oppositional w/ experimenter
- **Content:** distress/ need for help not acknowledged; problems are denied, ignored, or resolved in a stereotyped manner (“premature closure”), usually by the child alone
 - **Child:** isolated, rejected, or overly independent
 - **Parent:** rejecting/ neglecting, unavailable/ unhelpful; minimally involved in story resolution; importance of parents and/or relationship denied or dismissed
 - **Outcome:** Can be positive or negative, but distress is minimized or denied
- **Play:** unelaborated, casual, may avoid using parent dolls or place dolls far apart OR refusal to engage altogether
- **Overall strategy:** deactivating/ minimizing (downplay distress)

DISORGANIZED/FRIGHTENED (D)

- **Structure:** incoherent, contradictory, fearful/ dysregulated; may also be hostile/ controlling toward experimenter
- **Content:** bizarre, violent, lapses in logic, problems unresolved or worsened; themes of chaos/ helplessness; other injuries/ disasters occur
 - **Child:** fearful/frightened, self-blaming, helpless
 - **Parent:** frightened/helpless or frightening/abusive
 - **Outcome:** Generally negative
- **Play:** negative/ violent interaction between dolls, throwing or attempting to harm/ destroy dolls OR stilling or bizarre movements/behavior unrelated to doll story
- **Overall strategy:** fearful (e.g., hiding), aggressive, or bizarre/ inconsistent; distress is overwhelming or unmanageable

Summary Table of Previous Scoring Systems

Parent-child relationship

Thernton, Ridgeway, & Cassidy (1990)	Main, Kaplan, & Cassidy (1985)	Verschuieren et al. (1999)	Bureau & Moss (2010)	Solomon & George (1995)	Brandi dissertation
<p><u>Structure</u>: coherent, fluent presentation</p> <p><u>Content</u>: benign story resolutions</p> <p><i>Spilled juice</i>: juice spilled, P discipline/anger (if mentioned) not violent/ extreme</p> <p><i>Wart knee</i>: P responds with hug or band-aid; other pos endings only</p> <p>Cure if C's pain is also acknowledged</p> <p><i>Monster</i>: P deal w/ C's fear or C approaches P for comfort, allowing C to go to sleep</p> <p><i>Departure</i>: coping by protest, looking for P, playing w/ grandma, going to sleep)</p> <p><i>Reunion</i>: figures face each other, hug, have reunion conversations, or joint family activity</p>	<p>High scores given if C actively persuades P not to leave or attempts to go with P; expresses disappointment, anger, or distress directly (e.g., C would "cry and stamp her feet")</p> <p>Middle scores given to imaginative and constructive play in response to separation</p>	<p>"secure"</p> <p>open & pos interactions with responsive P; stories completed with little hesitation</p>	<p>"secure/confident"</p> <p>Enact danger themes w/ appropriate resolution & reintegration of family</p>	<p>"confident"</p> <p><u>Structure</u>: integrated</p> <p><u>Content</u>: danger & rescue/ reintegration, constructive activity/ acknowledge separation</p> <p>C = fundamental confidence in P & self, or comfortable autonomy</p> <p>Neg events resolved, family reunions complete; pleasure in reunion w/ acknowledgement of separation</p>	<p>High scores given for rich SB content; P helps C, all return to prior activities</p>

	Cassidy (1988)	Bretherton, Ridgeway, & Cassidy (1990)	Main, Kaplan, & Cassidy (1985)	Verschuere et al. (1999)	Bureau & Moss (2010)	Solomon & George (1995)	Brandi dissertation
Avoidant	<p>“avoidant”</p> <p>C = isolated, rejected R = importance denied</p> <p>Existence of conflict and need for help denied in stressful situations</p> <p>When successful resolution, it is brought about entirely by child</p>	<p>“avoidance of story issue”</p> <p>Responds w/ “I don’t know” or “I want another story” or only responds after several prompts</p> <p>Avoidance of story issue</p>	<p>Low scores given for “I don’t know”/ silence/ unelaborated play</p>	<p>“insecure-avoidant”</p> <p>P-C interactions minimal or C reluctant to complete story/ answer exp’s probes</p>	<p>“avoidant/casual”</p> <p>Stereotyped stories, banal events, distress minimized or suppressed</p>	<p>“casual”</p> <p><u>Structure</u>: stereotyped</p> <p><u>Content</u>: ordinary events; undoing; unavailable at reunion</p> <p>Fears of separation not directly expressed; avoidance during reunion (e.g., child goes to sleep or watches TV just before or during reunion); nonintegration of family at reunion</p> <p>C = independent, denying sep. anx by negating sep; casual disinterest in P’s return</p> <p>“deactivation” (prevention of attachment-related thoughts and feelings)</p>	<p>Low scores for P not helping/ minimal involvement; brief responses; C takes care of self</p>

	Cassidy (1988)	Bretherton, Ridgeway, & Cassidy (1990)	Main, Kaplan, & Cassidy (1985)	Verschuere et al. (1999)	Bureau & Moss (2010)	Solomon & George (1995)	Brandi dissertation
Disorganized	<p>“hostile/negative”</p> <p>C = violent, hostile, negative, or bizarre bx R = disorganized</p>	<p>“incoherent or odd”</p> <p>Often involve violence or disasters; inconsistent or contradictory information or responses unrelated to problem (e.g., “I bumped my head” in response to “What did they do about the monster?”)</p>	<p>Lowest scores given for responses that would decrease accessibility of P (e.g., killing self or P, locking C away)</p>	<p>“insecure-bizarre/ambivalent”</p> <p>Negative, hostile, bizarre interactions with P (can be alternated w/ brief scenes of harmonious interactions)</p>	<p>“disorganized/frightened”</p> <p>Unresolved violence/ chaos, C in danger OR Refuse actively or passively to participate in task (constricted)</p>	<p>“frightened”</p> <p><u>Structure</u>: chaotic or no play</p> <p><u>Content</u>: catastrophe & helplessness/ disintegration or inhibition</p> <p>Fears about P or C are out of control, potentially destructive; danger unresolved/ chaotic; P is frightening or abusive; C hides OR markedly constricted play, inhibition, fear</p>	<p>Lowest scores for no SB content; bizarre, incoherent; other incidents/ disasters occur; strangers may help C, but not P</p>
Busy	n/a	n/a	n/a	n/a (combined w/ disorganized)	<p>“ambivalent/busy”</p> <p>Digression; distress amplified and disconnected from source, blocking resolution</p>	<p>“busy”</p> <p><u>Structure</u>: digressive</p> <p><u>Content</u>: caregiving; parties; delay/ distraction/ incomplete reunion</p> <p>“cognitive disconnection” (disconnection from awareness of the links between affect and thought)</p>	n/a

	Cassidy (1988)	Bretherton, Ridgeway, & Cassidy (1990)	Main, Kaplan, & Cassidy (1985)	Verschuere et al. (1999)	Bureau & Moss (2010)	Solomon & George (1995)	Brandi dissertation
Scale Scores	<u>5-pt scale</u> 5 = most secure (other points not defined)	<u>4-pt scale</u> 4 = B3 3 = B1, B2, B4 2 = C1 1 = A1, C2, D	Not specified, but description on pp. 88-89 suggests 5-point scale with 5= most secure (B3)	<u>5-pt scale</u> 4-5 = secure 3 = “secure/ insecure” (don’t use) 1-2 = insecure (bizarre/ ambivalent)	?	?	<u>5-pt scale</u> 5 = rich SB content 4 = SB content clear but not rich 3 = some SB content; P involved but unclear whether P helped resolve situation 2 = P does not help/ minimal involvement; brief; C takes care of self 1 = no SB content; bizarre, incoherent; other incidents/ disasters occur; strangers may help C, but not P
Overall Scoring Procedure	<u>Summary score</u> = sum of continuous scores for all 5 stories <u>Classification</u> (3 cat.) = modal class. (for no-mode situations, coders look at stories together to determine where they should go)	<u>Classification</u> (4 cat.) = assigned to stories as a whole <u>Summary score</u> = derived from classification (see “scale scores” above)	n/a (only 1 response—separation)	<u>Summary score</u> = sum of continuous scores for all 5 stories <u>Classification</u> (3 cat.) = each story receives A/B/C&D classification, then overall classification is assigned based on these	?	?	

Appendix B: Excerpts from Key References

Bretherton, Ridgeway, & Cassidy (1990), pp. 284-295

The transcripts were subsequently analyzed in two ways. First, a content analysis was undertaken to examine the children's ability to understand the story issues and to create a story resolution. Second, each child's protocol was examined as a whole in order to classify the children's story presentations as reflective of secure or insecure attachment patterns. These classifications were based on structure *and* content of the stories. We looked for fluent presentation and coherent, benign story resolutions indicative of a secure attachment relationship. Note that the classifications took into account the child's total performance (language and enactment with figures) and were not primarily based on verbal fluency. One factor which facilitated the interpretation of enactments was the subject's willingness to respond to queries ("What are they doing?") when the nature of the behavior was unclear. A satisfactory response could be a one-word reply such as "Hug."

Criteria for Security. The classification system was developed by the first author and applied to the written protocols without knowledge of the 18-month Strange-Situation classifications (except in two cases). Separate criteria for security were established for each story. In the "spilled juice" story, responses were classified as secure if the juice was cleaned up, and parental discipline or anger (if mentioned) were not violent or extreme. In the "hurt knee" story, responses were classified as secure if one of the parents or the older sibling responded to the hurt child's pain by hugging or administering a Band-Aid. A positive ending to the story (children or parents climb the rock and jump off without falling) was classified as secure only if the story protagonist's initial pain was also acknowledged. In the "monster" story responses were categorized as secure if the parents dealt with the child's fear of the monster or the child approached the parents for comfort, allowing the child eventually to go to sleep. In the "departure" story, responses were regarded as secure if the children displayed coping behavior in response to the parents' absence (looking for the parents, playing with grandma, going to sleep). Finally, in the "reunion" story, responses were judged secure if the family figures faced each other, sometimes hugged each other, engaged in reunion conversations, and/or undertook a joint family activity. Furthermore, to be scored as secure, responses had to be given without more than one prompt for the story issue.

(Bretherton et al., cont'd.)

Criteria for Insecurity. On the basis of prior findings, especially those of Cassidy (1988) and Kaplan (1984), two types of criteria for scoring insecure responses were used: (1) avoidance of the story issue, and (2) incoherent or odd responses. Story responses were coded as avoidant if the subject responded only after several "don't know"s and prompts, or gave no response other than "I don't know" or "I want another story." Some subjects avoided the story issue despite responding (e.g., one subject reenacted the hurt knee story beginning but then merely labeled all the figures instead of completing the story). We regarded this as indicative of avoidant insecurity, because we attributed such behavior to defensiveness with respect to attachment issues. Where a subject requested another story after giving a minimal though appropriate response, this was coded as a very mild form of avoidance only if it occurred repeatedly across several stories.

Odd and disorganized responses (e.g., violently throwing the child figure on the floor; a car wreck after father rejoined mother and children who left on a second trip; giving answers that did not make sense within the story, such as "I bumped my head" when asked "What did they do about the monster?") were regarded as indicative of a different type of insecurity.

Subjects who resolved the story issues fluently (without many prompts) and appropriately (i.e., in line with the criteria described above) were classified as very secure if this occurred for all five stories (akin to the *B3* classification in the Strange Situation). If the children showed slight avoidant or odd responses on one or two stories they were classified as fairly secure (akin to the *B1* and *B2* classifications in the Strange Situation). Subjects who displayed strong defensive responses ("don't know," or responded but with complete avoidance of the issue) over three or more stories were classified as avoidant-insecure even if they also showed some disorganized responses, while subjects with odd or disorganized responses over three or more stories were classified as insecure-disorganized even if they also displayed some avoidant responses. That is, classification was determined by the predominant type of response. In difficult-to-classify cases (mild avoidance on one or two of the first two stories, strong avoidance on the departure and reunion stories), responses to the departure and reunion stories were especially heavily weighted. Cassidy's (1988) story completion data for 6-year-olds did not suggest any consistent pattern for ambivalent children, and none was detected in this study. With further use of the procedure, we expect that considerable refinements in the method of analysis will be worked out and that an ambivalent category of responding will be identified.

Main, Kaplan, & Cassidy (1985), pp. 88-89

The 6-year-old's responses to "What would the child do?" during a 2-week separation from parents compared to early security of attachment to each parent...

Children who were secure as infants might be expected to have internal images of the attachment figure as accessible, while children who were insecure in infancy might lack this image. Children who were secure as infants would then be able to imagine more active ways of dealing with child-parent separations than would children who were insecure as infants (Kaplan, 1984). Following this line of reasoning, a simple scoring system was developed and applied to the child's answers to the strongest of the separation situations, in which parents were portrayed as leaving for a 2-week period: "This little girl's/boy's parents are going away on vacation for 2 weeks; what's this little girl/boy gonna do?" The highest score was given if the child would actively persuade the parents not to leave for their vacation or accomplish the same end through other means. (One secure child suggested just hiding in the back of the car until the parents were launched on the trip.) A high score was also given if the child would express disappointment, anger, or distress directly, with the implication that this might lead to termination of the separation or be communicated to the parent. (Another secure child suggested the pictured child should "cry and stamp her feet.") A slightly lower score was given to the child who would find an apparent alternative attachment figure to stay with, so long as this seemed satisfactory to the child. A middle score was given to the child who would play with objects, but in an imaginative and constructive way that could make herself feel good, and somewhat lower scores were given to unelaborated play. Low scores were given to "I don't know" and to complete silence. The lowest score was given to any response that would result in decreasing the accessibility of the attachment figure. This included killing the self or the parents and locking oneself away. Only one code (the highest or "best" for which the response qualified) was assigned per child...

The average response for the children who had been [secure] with the mother was close to a constructive response that calls on people. Children who were [insecure] with mother in infancy tended on the average to answer that they did not know what the child would do during the 2-week separation, while some gave responses indicating potential or definite harm to self or parents.

Cassidy (1988), p. 126

Each of the six stories was rated on a five point scale designed to fit the particulars of the story. Scores at the high end of the scale were assigned to stories reflecting a secure relationship with the attachment figure. In addition, each story was placed into one of three classificatory groups. Stories were classified secure/confident when the doll protagonist was described as someone valuable and worthy and the relationship with the mother was important, special, and warm. There was open negotiation and a sense of fair play in stressful situations related to the mother, and there was an ability to turn to the mother for safety and protection in stressful situations related to an external source. In general there was a positive outcome. Stories were classified avoidant if the doll protagonist was isolated and/or rejected and the importance of relationships was denied; the existence of a conflict was denied in stressful situations stemming from both within and without the family, as was the need for help; and when there was a successful resolution, it was brought about entirely by the child. Stories were classified hostile/negative if the doll protagonist was involved in violent, hostile, negative, or bizarre behavior and the relationship with the mother was disorganized.

Codings were made from verbatim transcripts by a coder blind to all other information about the child. Each story was coded separately, with the coder having no information about the child's responses to stories other than the one being coded at the time. This independent coding of each story was helpful in preventing a "halo effect" from interfering with accurate scoring of each of the child's six stories. To assess reliability, 17 instances (33%) of each story were coded by one of two additional (blind) coders. Agreement within 1 point on the five-point scale averaged 92% (the range of agreement across stories and raters was 76%-100%). Mean agreement of classificatory group placement was 86% (range 76%-94%); disagreements were resolved through conference prior to analysis. (To assess test-retest stability, one of the stories--involving the child's gift to mother--was readministered during the second session. Ratings given on the two occasions correlated .63, $p < .001$; identical classification was assigned in 73% of instances, $\lambda = .28$.)

Mean ratings for the individual stories ranged from 2.7 to 2.9 (SDs 1.1-1.3). Ratings for the six stories were summed into a summary score for each child (possible range = 6-30); Cronbach's alpha for this summed score was .78. The modal classification assigned to the child's stories was used as a single summary index on the classificatory measure. (No modal pattern emerged for three children; the six stories of each were subsequently examined as a set by two independent coders who determined the summary classification with 100% agreement.)

Each of the five stories was rated on a five-point scale for attachment security and was placed into one of four classificatory groups. Stories received a score of 4 or 5 and were classified as “secure” if the children portrayed positive and open interactions with a responsive attachment figure and completed the stories with little hesitation. Stories were classified as “insecure–avoidant” if the parent–child interactions in the story were minimal or when the participant was reluctant to complete the story or to answer the experimenter’s probes. Responses were categorized as “insecure–bizarre/ambivalent” when the child portrayed negative, hostile, bizarre interactions with the parent, which could be alternated with brief scenes of harmonious interactions. Avoidant and bizarre/ambivalent stories received a score of 1 or 2 on the five-point scale for attachment security. A story that was neither clearly secure nor clearly insecure was coded as “secure/insecure” and was given score 3. For each story, detailed criteria for classification and scoring were available (Cassidy, 1986; Verschueren & Marcoen, 1994). On the basis of the classification for the five stories, each child received a global attachment categorization, either secure, avoidant, or bizarre/ambivalent, and a global attachment security score (sum of the five five-point scales). All stories were videotaped and coded from verbatim transcripts by a coder blind to all other information on the child. Each story was coded independently, without any information about the other stories of the child.

Miljkovitch et al. (2004), pp. 310-311

Security - The child is collaborative although not necessarily competent in narrative construction (may violate implicit rules of the task). Protagonists do not fit rigid normalized categories but display many facets, including flaws. The child is able to depict a wide range of affective states and acknowledges or enacts parental guidance, or feelings such as sadness or anger without difficulty. When a distressing situation is presented, the child is not passive but enacts stories in which the child protagonist re-establishes proximity with or gains security from the parental figures, even if this implies not conforming to the implicit rules of the task (e.g., he tries to hasten the parents' return during the separation story).

Deactivation - The child tends to be anxious, ill at ease, and inactive. He or she is reluctant to engage in play, avoids completing the story stems, refuses to play or needs to be encouraged to do so. The child seems to comply without actually wanting to participate. When narratives are produced, the stories and descriptions of parental figures are not rich, but terse and conventional. Narratives have an affectless quality and protagonists seem isolated rather than engaged in relationships with one another. Despite some difficulty in enacting protective caregiving parental attitudes, no negative emotions or behaviors are attributed to the parental figures.

Hyperactivation - The child is interested and aroused by the task, but his/her anxiety and wariness of the examiner may limit his/her capacity to engage in play. Yet when he/she does manage to do so, he/she is unable to present constructive completions of the story stem and is more likely to focus on or emphasize the negative aspects of the story.

Disorganization - The child creates stories marked by loss of control, with catastrophic endings or protagonists depicted as totally helpless and unprotected. Disintegration of family members or of the family itself are described. Controlling attitudes are expressed by the child in an extreme and violent way and themes of aggression or destruction are frequent. Children are pictured as taking on a parental role. Narratives are disorganized and incoherent. Alternatively, the child may be totally silent, inhibited and anxious.

ATTACHMENT STORY COMPLETION TASK (ASCT)

Coding Sheet

ID: _____ Date of session _____

Coder and date coded: _____

Child Gender: M F

Visual description of child, including clothing:

Any video problems or difficulty seeing child and/ or dolls? No Yes
0 1

Notes (e.g., what video to use for best view & sound):

OVERALL ASSESSMENT: Was child collaborative w/ experimenter? 0 1

GLOBAL SECURITY SCORE	GLOBAL CLASSIFICATION
Knee: _____	Knee: _____
Monster: _____	Monster: _____
Separation: _____	Separation: _____
Mean score = _____	Modal class. = _____
	<i>*If no modal classification, explain decision below:</i>

Key for transcribing:

- E = experimenter (David)
 - P = Child participant
 - C = Child doll
 - M = Mom
 - D = Dad
 - G = Grandma
-
- All ACTIONS in plain text.
 - All STATEMENTS in quotes, indicating speaker.
 - "E" = Experimenter's statements
 - "P2" indicates Prompt 2, if given.
 - Wavy underline indicates uncertain text.
 - "XXX" indicates missed text.

P moves M closer to C, so they are side by side.

M: "Let's go home, Jane."

E: "Mom says let's go home? Okay."

E: "What do they do about the hurt knee?" (P2)

P: "They go home and clean it up."

P: "And then Jane goes outside and XXX."

1. HURT KNEE	Start time:	Scoring: 1 - 5
--------------	-------------	----------------

KNEE_PROMPT1	Did E give 1st prompt ("Show & tell me what happens next")?	0	1
KNEE_PROMPT2	Did E give 2nd prompt ("What did they do about the knee")?	0	1
KNEE_ERROR	Did experimenter make an error?	0	1
	<i>Describe:</i>		

Child's statements and behaviors (be as detailed as possible):

KNEE_RESOLUTION	Was problem resolved?	0	1
→ KNEE_SPONT	Was resolution spontaneous (i.e., did not require 2 nd prompt)?	0	1
KNEE_PARENT	Was parent positively involved?	0	1
KNEE_AVOID	Problem avoided/ premature closure/ refusal OR Child resolves problem independently	0	1
KNEE_DISORG	Any overt instances of disorganization?	0	1 → automatic 1

KNEE_SECURITY:

1 2 3 4 5 999

Score description/ rationale:

KNEE_CLASSIFICATION:

Secure = 3
Avoidant = 2
Disorganized = 1
~~Uncodable~~ = 999

2. MONSTER		Start time:	Scoring: 1 - 5	
MON_PROMPT1	Did E give 1st prompt ("Show & tell me what happens next")?	0	1	
MON_PROMPT2	Did E give 2nd prompt ("What did they do about the monster")?	0	1	
MON_ERROR	Did experimenter make an error?	0	1	
<i>Describe:</i>				
<i>Child's statements and behaviors (be as detailed as possible):</i>				
MON_RESOLUTION	Was problem resolved?	0	1	
→ MON_SPONT	Was resolution spontaneous (i.e., did not require 2 nd prompt)?	0	1	
MON_PARENT	Was parent positively involved?	0	1	
MON_AVOID	Problem avoided/ premature closure/ refusal OR Child resolves problem independently	0	1	
MON_DISORG	Any overt instances of disorganization?	0	1	→ automatic 1

MON_SECURITY:

1	2	3	4	5	999
---	---	---	---	---	-----

Score description/ rationale:

MON_CLASSIFICATION:

Secure	= 3
Avoidant	= 2
Disorganized	= 1
<u>Uncodable</u>	= 999

3. SEPARATION/ REUNION		Start time:	Scoring: 1 - 5
SEP_PROMPT1	Did E give 1st prompt ("Show & tell me what happens next")?	0	1
SEP_PROMPT2	Did E give 2nd prompt ("What does Bob/Jane do now that Mom and Dad are home")?	0	1
SEP_ERROR	Did experimenter make an error? <i>Describe:</i>	0	1
<p><i>Child's statements and behaviors (be as detailed as possible):</i></p>			
SEP_COPE	Did child cope constructively w/ separation?	0	1
SEP_RESOLUTION	Is child reintegrated into family at reunion?	0	1
→ SEP_SPONT	Was resolution spontaneous (i.e., did not require 2 nd prompt)?	0	1
SEP_EMO	Does child express sadness/ protest during separation AND/OR express joy upon reunion?	0	1
SEP_AVOID	Problem avoided/ premature closure/ refusal OR casual/ superficial reintegration	0	1
SEP_DISORG	Any overt instances of disorganization?	0	1 → automatic 1

SEP_SECURITY:

1	2	3	4	5	999
---	---	---	---	---	-----

Score description/ rationale:

SEP_CLASSIFICATION:

Secure	= 3
Avoidant	= 2
Disorganized	= 1
<u>Uncodable</u>	= 999

Appendix D: Caregiving Story Completion Task Story Stems

Fear: Big Dog – Card Notes

In this story, there's a sidewalk. This is the sidewalk.

This is Gabbi/Noah, and (grab brunette) this is her friend.

Gabbi/Noah and her friend are walking home together from school, on this sidewalk.

They are talking and laughing.

Gabbi/Noah says: "I really like walking home with you!"

Fr: "Me too!"

Gabi: "Hanging out with you is fun!"

Fr: "Yeah!"

(add dog) Then, they see a great big dog in the distance.

Gabbi/Noah *likes* dogs a lot and always feels comfortable around them but her friend does *not* like dogs.

Suddenly, the great big dog runs up to them and starts barking. "Ruff, ruff!"

It is a really big and really loud dog. PAUSE

Gabbi/Noah's friend says (fearful voice), "Oooooohhhhhhhh nooooo! This dog is really big and loud! AAAhhhh! AAAhhhh!" PAUSE

Handing dolls to child: "Show and tell me what happens next."

1. Does Gabbi/Noah do anything (else)?
2. Does Gabbi/Noah say anything (else)?

Physical Pain: Swimming Pool –Card Notes

This story takes place in a swimming pool. This is the pool. (Show cloth)

This is Gabbi/Noah.

And (grab black hair) this is her friend.

Gabbi/Noah and her friend are playing together in the swimming pool.

Gabi says: “Splash splash...this is so fun.”

Fr: Ooh, yes, this is fun! Splash! (jumping dolls up and down)

Then they decide to get out///

and are walking barefoot to get their towels./

The friend says (painful voice, less sad) “Owwwch I stepped on a rock! // That really hurts! Owwww!” 2 crying sobs

Handing dolls to child: “Show and tell me what happens next.”

1. Does Gabbi/Noah do anything (else)?
2. Does Gabbi/Noah say anything (else)?

Fear: Sleepover – Card Notes

Here's our next story.

This story happens in Gabbi/Noah's house; (get cloth) this is a rug in her living room and here's their TV. (a cloth square).

This is Gabbi/Noah. (grab blonde) This is her friend.

Move to rug -- Tonight is her friend's **first time** ever having a sleepover at Gabbi/Noah's house.

Gabbi/Noah and her friend are watching a movie on TV. and it is Gabbi/Noah's **favorite** movie
Gabbi/Noah says "I really like this movie."

Fr: "Me too!"

Gabi: "Oh, this part of the movie is really good!"

Fr: "Yeah!"

After a while, her friend sees something in the movie, and says

(scared voice, cry) "There are some mean people in this movie! Oh no!!! /// I don't like this movie! /// Aghhh!!!"

Move rug to child: "Show and tell me what happens next."

1. Does Gabbi/Noah do anything (else)?

2. Does Gabbi/Noah say anything (else)?

Sadness: Lost Toy – Card Version

This next story takes place in a park.

This is the park (a green square cloth).

This is Gabbi/Noah, and (grab redhead) this is her friend.

Gabbi/Noah and her friend are swinging together on the park swings.

(alternate swinging)

Gabbi/Noah says: “Wheee!! This is fun.”

Fr: “Yeah, I like to go high!”

Gabi: “Me too! Swinging, swinging!”

Her friend says, (excited voice). “I have my *very special teddy bear* in my backpack.// I’m going to get him and let him swing on the swing with me!”

She/he gets off the swing and runs over to her backpack // to get her teddy bear. PAUSE

But when she/he opens her backpack: “ (Gasp) (Sad voice) OH NO! My teddy bear is gone! (sad voice).

Awwww... //

He must have fallen out of my backpack!” (2 Crying sounds)

Pushing cloth to child: “Show and tell me what happens next.”

1. Does Gabbi/Noah do anything (else)?
2. Does Gabbi/Noah say anything (else)?

Caregiving Story Completion Task (CSCT)

Coding Manual

Description of the task

Using doll figures, the experimenter sets up four story stems: (1) Big Dog, (2) Swimming Pool, (3) Sleepover, and (4) Lost Toy. In each story stem, there is a main character, Gabby (G) or Noah (N), and a friend (F). After each story stem, the experimenter asks the child to “show and tell me what happens next.” Children’s responses are video-recorded.

The task of the coder is to interpret the child’s verbal and behavioral (doll play) responses in terms of their underlying caregiving script representations—that is, their representation of caregiving events in which (1) a distressing obstacle is encountered; (2) an available caregiver recognizes the distress; (3) this caregiver approaches and comforts the distressed other; (4) the provided comfort assists the distressed other in calming down; (5) the problem is resolved; and (6) Both the caregiver and the previously distressed other return to normalcy, either by engaging in an activity (e.g. “Ok lets go play basketball) or being in an explicitly acknowledged emotional state in which they can now face the world (e.g. “I feel calm now).

I. Overview of Coding Procedure

8. Watch each story one at a time. Take notes on the child’s statements and actions. When watching, watch all the way through the child’s story and the first two prompts (“Does G/N do anything (else)?” and “Does G/N say anything (else)?”)

** If you can't understand what the child is saying/ doing, repeat the recording as many times as needed, and watch the recording from other camera angle. Do not guess or assume what the child said/ does! If you still can't understand what is happening or what was said, show a coding supervisor.*

Transcription Instructions: In the large box on your coding sheet, give a detailed description of the child’s actions and statements. Use *initials* to indicate who is speaking/ acting:

- E = Experimenter (David)
- C = Child Participant
- N = Noah
- G = Gabby
- F = Friend
- CG = Caregiver

Use the following tools to make your transcripts as clear as possible:

- | | |
|--|--|
| – Write all ACTIONS in plain text, using initials to indicate who is doing what. | <u>EXAMPLE</u>
N moves in front of F so he's blocking the TV. |
| – Write all STATEMENTS in quotes, using initials to indicate the speaker.
Include statements by the experimenter. | N: "I'll find your teddy bear."

E: "Noah says he'll find his teddy bear? Okay." |
| – Use "P" to indicate prompts at the end | P - E: "Does Noah do anything?" (P2) |
| – Use a wavy underline to indicate statements you are unsure about. | C: "They go home and <u>find it at home.</u> " |
| – Use "XXX" to indicate statements you can't hear or are uninterpretable even after several listens. | C: "And then Jane goes outside and XXX." |

If you have written dialogue and have no wavy line underneath it, that indicates full confidence in what you heard. If there's any doubt, put a wavy line under it.

Once you have a detailed transcript, **fill in the No/Yes ("0/1") questions** on the coding sheet—these will help you hone in on a caregiving score, as well as experimenter prompts and errors.

*NOTE: Occasionally, a video problem or experimenter error(s) will make a story uncodable (e.g., the dolls are not visible from either camera OR the experimenter skips a prompt that might influence a child's score). If you think a story might be uncodable, make a note on your coding sheet, put a post-it on the sheet, and bring this case to coding meeting to discuss. However, if at all possible, **assign a score using whatever information you have**. It's better to err on the side of coding what you have (rather than having lots of missing data. On the other hand, you do not want to be just guessing about things that you can't hear or see. So the point here is to walk the line between needless missing data and incorrect data.). We will make the determination about whether to include it in the meeting.*

9. Assign a **caregiving script** score from 1 to 4 **for each story** and provide a brief justification for your score. Your scores should be based on:
 - a. your notes about the child's statements and behavior
 - b. the "0/1" indicators on your coding sheet
 - c. ****the scoring descriptions for each story defined in THIS MANUAL****

***** AFTER YOU HAVE GIVEN YOUR CAREGIVING SCRIPT SCORE, THEN MOVE ON TO #3. DO NOT WATCH BEYOND THE FIRST TWO QUESTIONS*****

II. Caregiving Script Scores

This measure was newly developed for this study. As such, the scoring system is currently a work in progress. The current scoring system was initially inspired by Waters & Waters (2006) secure base script scoring system and further developed by watching pilot videos. The system is designed to capture a wide variety of script representations, behaviors, and outcomes of the stories.

General notes:

- *If Gabby/Noah provide some care, **SCORE MUST 3 OR 4.***
- *Stories with any indicator(s) of chaos/helplessness or hostility/violence that is not in the service of a resolution receive an **automatic score of 1.***
 - o *NOTE: If a full caregiving episode is observed before prompts AND THEN a hostile event is seen after the prompts, focus on the caregiving episode BUT SUBTRACT ONE FROM WHATEVER SCORE WOULD BE ASSIGNED TO THE CAREGIVING EPISODE. THAT IS A 4 GOES TO A 3 AND A 3 GOES TO A 2.*
- *Pay attention to how the story ends. Are things better, staying the same, or worse? If it gets better, is it because of the G/N?*
- *If the child says “They”, it implies that G/N are part of the action and providing care*
- *Care can be provided by people other than G/N, such as mom/dad/grandma/police officer*

Care is not provided	<p>1 These are stories where things end worse off than they started:</p> <ul style="list-style-type: none"> • Child (participant) introduces aggressive content. This can be hostility between any of the characters of the story OR aggression in relation to objects (e.g. N smashes TV) • If the distress is resolved but an unresolved negative event follows it, the negative event trumps the resolution.
	<p>2 These are stories where the distress is not dealt with by G/N. There is a moving away from seeking or giving care. Examples include such things as:</p> <ul style="list-style-type: none"> • Child (Participant) is disengaged from the stories (“I don’t want to do this”) • OR Child (participant) claims to be uncertain about the story (e.g. “I don’t know what happens next”) • OR Friend resolves the distress by him/herself² and Gabby/Noah is uninvolved in the resolution • OR Story is focused on Gabby/Noah • OR event-focused stories where the distress is not acknowledged but no new distress is created
Care is provided	<p>3 Gabby/Noah provides care but G/N & F do not return to normalcy</p> <ul style="list-style-type: none"> • Specific details about returning to normalcy can be found within specific descriptions for each story below • OR G/N encourages/assists/scaffolds/models friend in addressing the distress, but is not explicit providing care
	<p>4 </p> <ul style="list-style-type: none"> • Gabby/Noah notices distress and provides clear assistance or care. • The care provided must clearly be effective in relieving the friends. This can be signaled by returning to play (i.e. “G/N finds it and then they get back on the swing) OR by a clear signal that everything is all better and distress has been resolved (e.g. “I’m not scared anymore.”)

² Children resolving their own distress is a perfectly reasonable thing to do. However, the logic of the stories is set up in such a way that the child is distressed and another actor is not.

Examples of Caregiving and Return to Normalcy

BIG DOG

Care is not provided	1	<p>Any of the following indicators warrants an automatic 1:</p> <ul style="list-style-type: none"> • Aggression (verbal or with dolls) (e.g. N: “You don’t like dogs so we’re not friends anymore”, N doll hits F doll) <ul style="list-style-type: none"> ◦ <i>NOTE: If a full caregiving episode is observed before prompts AND THEN a hostile event is seen after the prompts, focus on the caregiving episode and score a 3 or 4</i> • Big Dog problem is unresolved (e.g. “They don’t do anything.”) • Addition unresolved problems (e.g. C: “They walk past the dog...but then a car hits them.”)
	2	<p>A 2 is characterized by:</p> <ul style="list-style-type: none"> • Resolution without G/N (e.g. “F likes dogs now so its ok.”, “F just goes home.”) • G/N centric stories (“G/N loves dogs and now its her dog.”, “Dogs are like horses and N likes horses.”) • Child disengagement (e.g. “C: I don’t know what happens next.”, “I don’t want to do this game anymore.”)
Care is provided	3	<p>A 3 involves: Care provision without resolution</p> <ul style="list-style-type: none"> • G/N positive reframing situation (scaffold/encourage/assist/models) Examples “G/N: Touch the dog, F does.” “G/N: This is a nice dog.” • Direct care that is unresolved- (e.g. “G/N says don’t worry.”)
	4	<p>A 4 is characterized by care provision followed by returning to normalcy. THERE MUST BE A CLEAR RESOLUTION. Fully resolving distress is not enough. There is a distinction between fully resolving distress and returning to normalcy. It does not necessarily mean that they have to return to playing. It is more about the sense that all is well.</p> <p>Care provision with clear resolution (Resolution noted in Italics)</p> <ul style="list-style-type: none"> • THESE ARE EXAMPLES WITH CLEAR RESOLUTION “N/G: I’ll protect you, F: <i>Thank you!</i>” “N/G shows her that it’s a nice dog and <i>then they play with the dog.</i>”).

Swimming Pool

Care is not provided	1	Any of the following indicators warrants an automatic 1 : <ul style="list-style-type: none"> • Aggression (verbal or with dolls) (e.g. “N dunks her under the water”, N doll hits F doll) <ul style="list-style-type: none"> ◦ <i>NOTE: If a full caregiving episode is observed before prompts AND THEN a hostile event is seen after the prompts, focus on the caregiving episode and score a 3 or 4</i> • Unresolved problem of hurt knee (e.g. “They don’t do anything.”) • Additional unresolved problems (e.g. “They go home but now they can’t find their towels”)
	2	A 2 is characterized by: <ul style="list-style-type: none"> • Resolution without G/N (e.g. “F puts a bandaid on”) • G/N centric stories (“G/N goes back in the pool and splashes more.”) • Child disengagement (e.g. “C: I don’t know what is next.”, “I don’t want to do this game anymore.”)
	3	A 3 involves: Care provision without resolution. <ul style="list-style-type: none"> • Direct care without clear resolution (e.g. “G/N says don’t worry, I’ll help”) • G/N positive reframing situation (scaffold/encourage/assist/models) “G/N says don’t worry it will be ok soon.”
Care is provided	4	A 4 is characterized by care provision followed by returning to normalcy. THERE MUST BE A CLEAR RESOLUTION. Fully resolving distress is not enough. There is a distinction between fully resolving distress and returning to normalcy. It does not necessarily mean that they have to return to playing. It is more about the sense that all is well. <p>Care provision with clear resolution</p> <ul style="list-style-type: none"> • THESE ARE EXAMPLES WITH CLEAR RESOLUTION (Resolution noted in Italics) <ul style="list-style-type: none"> “N/G says I’ll help and <i>then the boo-boo didn’t hurt anymore.</i>” “N/G carries her to the towels and <i>then they get back in the pool.</i>”

Sleepover

Care is not provided	1	<p>Any of the following indicators warrants an automatic 1:</p> <ul style="list-style-type: none"> • Aggression (verbal or with dolls) (e.g. “G/N says stop being a baby and watch the movie”, G/N doll hits F doll, G/N/F knocks over the TV) <ul style="list-style-type: none"> ◦ <i>NOTE: If a full caregiving episode is observed before prompts AND THEN a hostile event is seen after the prompts, focus on the caregiving episode and score a 3 or 4</i> • Unresolved problem of movie (e.g. “They don’t do anything.”) • Additional unresolved problems (e.g. “They change it to a new movie but now there’s more mean people and they’re scared!”)
	2	<p>A 2 is characterized by:</p> <ul style="list-style-type: none"> • Resolution without G/N (e.g. “F changes it to a different movie”, “They go to sleep.”) • G/N centric stories (“G/N really loves this movie so they keep watching.”) • Child disengagement (e.g. “C: I don’t know what happens next.”, “I don’t want to do this game anymore.”)
Care is provided	3	<p>A 3 involves: Care provision without resolution.</p> <ul style="list-style-type: none"> • Direct care without clear resolution (e.g. “G/N says don’t worry, I’ll change it”) • G/N positive reframing situation (scaffold/encourage/assist/models) (e.g. “G/N says don’t worry this part will be done soon.”)
	4	<p>A 4 is characterized by care provision followed by returning to normalcy. THERE MUST BE A CLEAR RESOLUTION. Fully resolving distress is not enough. There is a distinction between fully resolving distress and returning to normalcy. It does not necessarily mean that they have to return to playing. It is more about the sense that all is well.</p> <p>Care provision with clear resolution</p> <ul style="list-style-type: none"> • THESE ARE EXAMPLES WITH CLEAR RESOLUTION (Resolution noted in Italics) • “N/G says lets watch a new movie and <i>this movie is way better</i>” • “G/N go play a different game instead and <i>they have a lot of fun</i>”

Lost Toy	
Care is not provided	<p>1 Any of the following indicators warrants an automatic 1:</p> <ul style="list-style-type: none"> • Aggression (verbal or with dolls) (e.g. “G/N stole the bear”, “G/N finds the bear and says its mine now”, G/N doll hits F doll) • Unresolved problem of lost toy (e.g. “They don’t do anything.”) • Addition of unresolved problems (e.g. “They find the bear and go swinging. But then they fall off the swings and get hurt”)
	<p>2 A 2 is characterized by:</p> <ul style="list-style-type: none"> • Resolution without G/N (e.g. “F finds the bear”) • G/N centric stories (“G/N keeps swinging because she likes to go high.”) • Child disengagement (e.g. “C: I don’t know what happens next.”, “I don’t want to do this game anymore.”)
Care is provided	<p>3 A 3 involves: Care provision without resolution.</p> <ul style="list-style-type: none"> • Direct care without clear resolution (e.g. “G/N finds the bear”) • G/N positive reframing situation (scaffold/encourage/assist/models) (e.g. “G/N says you should look over there and then they find it.”)
	<p>4 A 4 is characterized by care provision followed by returning to normalcy. THERE MUST BE A CLEAR RESOLUTION. Fully resolving distress is not enough. There is a distinction between fully resolving distress and returning to normalcy. It does not necessarily mean that they have to return to playing. It is more about the sense that all is well.</p> <p>Care provision with clear resolution</p> <ul style="list-style-type: none"> • THESE ARE EXAMPLES WITH CLEAR RESOLUTION (Resolution noted in Italics) “N/G finds the bear and <i>then they go back to swinging</i>”, “G/N says you can borrow my bear and <i>F says thank you.</i>”

CAREGIVING STORY COMPLETION TASK (CSCT)
Coding Sheet

ID: _____ Date coded _____

Coder and date coded: _____

Child Gender: M F

Visual description of child, including clothing:

Any video problems or difficulty seeing child and/ or dolls? No Yes
0 1

Notes (e.g., what video to use for best view & sound):

OVERALL ASSESSMENT: Was child collaborative w/ experimenter? 0 1

CAREGIVING SCRIPT SCORE	DAVIDOV EMPATHY
Dog: _____	Dog: _____
Pool: _____	Pool: _____
Sleep: _____	Sleep: _____
Toy: _____	Toy: _____

Key for transcribing:

- E = Experimenter (David)
- C = Child Participant
- N = Noah
- G = Gabby
- F = Friend

- | | |
|---|--|
| <ul style="list-style-type: none"> - All ACTIONS in plain text, using initials to indicate who is doing what. - All STATEMENTS in quotes, using initials to indicate the speaker.
Include statements by the experimenter. - Use "P" to indicate prompts at the end - Use a wavy underline to indicate statements you are unsure about. - Use "XXX" to indicate statements you can't hear or are uninterpretable even after several listens | <p>N moves in front of F so he's blocking the TV.</p> <p>N: "I'll find your teddy bear."</p> <p>E: "Noah says he'll find his teddy bear? Okay."</p> <p>P - E: "Does Noah do anything?" (P2)</p> <p>C: "They go home and find it at home."
</p> <p>C: "And then Jane goes outside and XXX."</p> |
|---|--|

1. Big Dog	Start time:
Dog_ERROR	Did experimenter make an error?
	0 1
<i>Describe:</i>	
<i>Child's statements and behaviors (be as detailed as possible):</i>	

		No	Yes
Dog_Care	Was care provided?	0	1
→ Dog_SPONT	Was care spontaneous (i.e., came before prompts)?	0	1
Dog_AVOID	Problem avoided/ premature closure/ refusal OR Child resolves problem independently	0	1
Dog_Hostile	Any overt instances of hostility/violence?	0	1 → automatic 1

Dog_CARESCRIPT:

1	2	3	4	999
---	---	---	---	-----

Score description/ rationale:

EMPATHY

1. How is N/G feeling? _____

2. Why is N/G feeling that way?

3. Why would that make N/G feel [#1 answer]?

SCORE:

Rationale:

2. Swimming Pool

Start time: _____

Pool_ERROR

Did experimenter make an error?

0

1

Describe:

Child's statements and behaviors (be as detailed as possible):

		No	Yes
Pool_Care	Was care provided?	0	1
→ Pool_SPONT	Was care spontaneous (i.e., came before prompts)?	0	1
Pool_AVOID	Problem avoided/ premature closure/ refusal OR Child resolves problem independently	0	1
Pool_Hostile	Any overt instances of hostility/violence?	0	1 → automatic 1

Pool_CARESCRIPT:**1 2 3 4 999***Score description/ rationale:***EMPATHY****4. How is N/G feeling? _____****5. Why is N/G feeling that way?****6. Why would that make N/G feel [#1 answer]?****SCORE:****Rationale:**

3. Sleepover

Start time: _____

Sleep_ERROR

Did experimenter make an error?

0

1

Describe:

Child's statements and behaviors (be as detailed as possible):

		No	Yes
Sleep_Care	Was care provided?	0	1
→ Sleep_SPONT	Was care spontaneous (i.e., came before prompts)?	0	1
Sleep_AVOID	Problem avoided/ premature closure/ refusal OR Child resolves problem independently	0	1
Sleep_Hostile	Any overt instances of hostility/violence?	0	1 → automatic 1

Sleep_CARESCRIPT:**1 2 3 4 999**

Score description/ rationale:

EMPATHY**7. How is N/G feeling?** _____**8. Why is N/G feeling that way?****9. Why would that make N/G feel [#1 answer]?****SCORE:****Rationale:**

4. Lost Toy	Start time:
Toy_ERROR	Did experimenter make an error? 0 1
Describe:	
<i>Child's statements and behaviors (be as detailed as possible):</i>	

		No	Yes
Toy_Care	Was care provided?	0	1
→ Toy_SPONT	Was care spontaneous (i.e., came before prompts)?	0	1
Toy_AVOID	Problem avoided/ premature closure/ refusal OR Child resolves problem independently	0	1
Toy_Hostile	Any overt instances of hostility/violence?	0	1 → automatic 1

Toy_CARESCRIPT:

1	2	3	4	999
---	---	---	---	-----

Score description/ rationale:

EMPATHY

10. How is N/G feeling? _____

11. Why is N/G feeling that way?

12. Why would that make N/G feel [#1 answer]?

SCORE:

Rationale:

Comforting Task Coding Manual

Developed by: Jackie Gross, Bonnie Brett, Jonathan Beier, and Jude Cassidy
The University of Maryland

Unpublished Coding Manual

General Coding Notes

This manual codes the variety of behaviors shown by preschool children in a series of 3 tasks measuring children's comforting and/or negative behavior toward an adult experimenter's emotional distress (Phone, Clipboard, and Drawing).

Before you begin coding, please understand that capturing children's nuanced behavior from videotape is difficult to do with a series of strict rules. We have developed these coding rules to help capture the "spirit" of the children's intentions and attitudes, but there will always be cases that aren't covered by the existing rules. Sometimes, we will need to make exceptions to the rules or create NEW rules that more accurately reflect reality. **As a coder, part of your job is to recognize when the existing rules need to be changed or added to in order to better reflect reality.** These rules are no substitute for human reason. Therefore, always keep in mind the spirit of WHAT exactly you are coding and the underlying reasons for WHY. Always be alert and ask yourself what you think is really happening in the task, and whether the codes you enter are accurate reflections of reality. In other words, take into consideration both the "spirit" and the "letter" of the law.

Throughout this manual, we have included explanations for what the code is and why you are coding it, but if you ever feel like you don't fully understand the codes or their reasons, please ask a coding supervisor. It is important that you are fully informed about the construct you are coding.

Sometimes, the manual will specify how many times to watch a task. If, however, you need to watch a task or a portion of a task more times to fully understand what is happening or to hear something more clearly, please watch it as MANY TIMES AS NEEDED. Never guess at what you see or hear. Take the time to replay the segment or task until you fully understand. It is better to be accurate than quick.

It also may seem as though you are watching the task too many times, and it's becoming repetitive and boring, especially when it comes to coding the comforting tasks. However, the more you watch the task, the better you "get to know" the child and coding becomes easier. It is also very easy to miss some subtle behavior, especially if you don't watch it as many times as the manual specifies!

If a child says part of a sentence and then stops, code whatever information you have from what was said. We cannot guess at what the child WOULD HAVE said, but we can go ahead and code what was said. In addition, we cannot give a child credit for something they say they WILL do (but never follow through with), or with what we are certain they WOULD HAVE done (but never actually did).

Never code with another coder in the room. It is very important that your actions not influence any other coder. This includes you both coding silently but together. Only during group meetings may you share any information about coding (other than asking for help with understanding a child's utterances).

Basic Coding Rules for Comforting Tasks

Instructions are the same for Phone, Clipboard, and Drawing tasks.

Code all of one type of task first, then all of the second type, then all of the third type. Do not code all tasks for a single child in a row, because scores from one task should not unknowingly influence scores from another task.

When coding, don't only pay attention to what is said, but also to actions. Nonverbal behavior and body language are also codeable responses.

Watch the video as many times as needed to determine what was said/what is happening. If you can't understand the child, keep watching as many times as needed. Do not guess at what the child said! If you still cannot understand what is happening or what was said, then do the following (in this order):

- 1) Check the transcript.**
- 2) Open the file in VLC media player and turn up the volume all the way. Wear headphones, as this may also make it louder and clearer-sounding.**
- 3) Ask other people in the lab to come in and listen. Ask other RAs and graduate students, whoever is around.**
- 4) If no one can understand, then put a large star at the top of the coding sheet, with a note about which interval you could not understand. Bring it to the next coding meeting and we will all listen.**
- 5) If no one can understand at the meeting, the starred interval will remain on the coding sheet. Code that interval as though the child said nothing at all - this means the child may get all 0's, or you may be able to code non-verbal behaviors, such as concerned attention or proximity.**

Code each 10-second timeslice as a stand-alone segment. Meaning, for example, if a response begins in the first timeslice and continues into the second timeslice, both timeslices would receive a code of 1 for that type of response. Even if only 1 second of a response extends into a certain timeslice, that timeslice would get a code of 1 for that type of response. Anything less than 1 second does not count. If it's a full word, it counts, even if less than 1 second.

- When coding timeslices, watch out for behavior and/or verbal statements that carry over into the next timeslice, or began in the previous timeslice. It's very easy to miss the codeable response that only occurred for a second in a particular timeslice - this is especially true of behavior!
- You may have to watch an timeslice before or after the one you are coding in order to determine whether something is part of a supportive/negative/personal distress response or not. Context is important.

- When in doubt of the subjective meaning or intent behind a child's response, then go with the literal wording. We cannot guess at child's intent when it is unclear.
- Each task is divided into 4 segments (if it did not end early). See the description of the tasks above for more details. While watching the task for the very first time, try to notice the 4 different segments. You will need to identify in which segment many responses occurred, so be familiar with what each segment looks like.
- As a general rule, never have any blank spaces on your coding sheet. If a certain blank space on the coding sheet is not applicable, then mark it with an X or NA.
- Intervals that are less than 8 seconds long are not included in your total response count. Instead, it will be included as part of the preceding interval. For example, if the last interval is 3 seconds long, it will be added to the previous 10-second interval, to create a 13-second final interval. Code both intervals separately, but then collapse the numbers across both intervals (i.e., if one or both intervals contain a certain behavior, then the 13-second combined interval will get a "1" for that behavior. Only if both do NOT contain the behavior will the 13-second interval get a "0" for that behavior). The only exception to this rule is if the child physically COMFORTS (not just touches) and E ends the task early, resulting in a single, short interval containing this important comforting action. We want 1 and only 1 interval to capture the physical comforting response, so keep the interval, even if it is less than 8 seconds long. Code other response types for what ever you can. If the child physically TOUCHES (non-comforting) or if E didn't end the task early, then code the intervals using the regular rules (above).

Description of Tasks

Phone: In this comforting task the experimenter (E) drops her phone and says, "oh my phone! The screen broke...look, it's all cracked!" Then E acts very sad, moaning and sighing for duration of the task. The maximum duration of this task is 2 minutes (task ended if and when child physically soothed). In the first 30 seconds (approximately), E says nothing (SEGMENT 1). In the second 30 seconds, E states the problem three times (e.g., "I'm so sad my phone is broken", "my phone won't even turn on now") but does not look at the child (SEGMENT 2). In the third 30 seconds, E states the problem three times while looking at the child periodically (SEGMENT 3). In the final 30 seconds, E first asks the child, "Is there anything you can do to make me feel better?", states the problem once more, and then asks, "Can you think of anything else you can do?" (SEGMENT 4). She then resolves the problem – "Oh, I just remembered, my cousin knows how to fix phones... it'll be alright."

Clipboard: In this comforting task the experimenter (E) clips his finger with a clipboard and says, "oh, my finger!" Then E acts very hurt, moaning for duration of the task. The maximum duration of this task is 2 minutes (task ended if and when child physically soothed). In the first 30 seconds (approximately), E says nothing (SEGMENT 1). In the second 30 seconds, E states the problem three times (e.g., "my thumb hurts so much", "I clipped my finger really hard!") but does not look at the child (SEGMENT 2). In the third 30 seconds, E states the problem three times while looking at the child (SEGMENT 3). In the final 30 seconds, E first asks the child, "Is there

anything you can do to make me feel better?", states the problem once more, and then asks, "Can you think of anything else you can do?" (SEGMENT 4). She then resolves the problem – "Maybe if I stretch a little... oh that feels better."

Drawing: In this comforting task the experimenter (E) accidentally spills water on her own drawing and says, "oh my drawing!" Then E acts very sad, moaning and sighing for duration of the task. The maximum duration of this task is 2 minutes (task ended if and when child physically soothed). In the first 30 seconds (approximately), E says nothing (SEGMENT 1). In the second 30 seconds, E states the problem three times (e.g., "I'm so sad my drawing is ruined", "I worked so hard on this and now it's ruined") but does not look at the child (SEGMENT 2). In the third 30 seconds, E states the problem three times while looking at the child (SEGMENT 3). In the final 30 seconds, E first asks the child, "Is there anything you can do to make me feel better?", states the problem once more, and then asks, "Can you think of anything else you can do?" (SEGMENT 4). She then resolves the problem – "You know, I can just make another one tomorrow. Yea I'll do that!"

Recognizing "segments" within each 2-minute task

It is important before you begin coding that you understand how and why each task is divided into segments. We are interested in the difference between SPONTANEOUS prosocial behavior and REQUESTED prosocial behavior. Some kids will be prosocial, but only after someone asks them to be. Other kids will automatically and spontaneously help a person without any requests or cues. Therefore, we divided every task up into segments, in which the requests for help become more and more obvious. Prosocial behavior exhibited during the first segment will be considered "more spontaneous" than the same behaviors exhibited during later segments. Each segment is ABOUT 30 seconds long.

The first segment is the most subtle, and therefore, any prosocial behavior occurring here will be the most spontaneous on the part of the child. It involves E simply drawing the child's attention to the situation (with a verbal statement), and then not saying anything more about the problem, and not even LOOKING at the child, since looking at someone while in need may be perceived as an implicit request for help.

The second segment is a bit more obvious. It involves E putting the problem into words 3 different ways. In case the child didn't understand the nature of the problem based on non-verbal cues, he/she will understand it now during this segment. That makes acting prosocially a little less spontaneous. However, E still does not look at the child, so as not to imply she is "requesting" help implicitly.

In the third segment, E again states the problem in 3 different ways AND periodically glances at the child. This segment makes prosocial behavior more likely.

In the final segment, E directly asks the child, "Is there anything you can do to make me feel better?" She then states the problem once more. She then asks the question again. Throughout this segment, E is periodically looking at the child.

Use the information below as a guide while coding:

Segment 1 = E doesn't say any sentences (only things like, "oh no") and doesn't look at the child at all. The only exception is that E will say something when the event first happens (e.g., "oh no, my phone broke! The screen is cracked!"). But after this initial comment, E will not say anything else about the nature of the problem or look at the child. E may answer the child's direct questions (because not doing so would be awkward). **BEGINS:** At the beginning of the initial comment about what happened. **ENDS:** When E first begins to say something (unless it was a response to the child's direct question, and occurred sooner than 30 seconds).

Segment 2=E states the problem (e.g., "I hurt my finger!", "I'm very sad about my drawing"), but still does not look at the child at all. You'll know this segment has begun when E first states the problem (and it's been about 30 seconds). **BEGINS:** When child first begins to say something for the first time (after about 30 seconds have passed). **ENDS:** When E first looks at child.

Segment 3=E states the problem AND looks periodically at the child. You'll know this segment **has begun when E looks directly at the child** and states the problem again (and it's been about 30 seconds from the start of the previous segment). Out of these two factors, the most important one is E looking at the child. **BEGINS:** When E first looks at child. **ENDS:** When E first begins to ask, "is there anything...?"

Segment 4=Begins as soon as E asks, "Is there anything you can do to help me feel better?" This will be the final 30 seconds or so of the task. **BEGINS:** When E first begins to ask, "is there anything...?" **ENDS:** When E first begins to say something that will resolve the situation.

IMPORTANT NOTE ABOUT SEGMENTS: Sometimes, E made an error while moving through these segments. For example, E accidentally looks at the child at the transition into segment 2, thinking it was segment 3, or if a segment is > 45 seconds. **If this happens, code behaviors as if E did not make a mistake, and simply mark on the coding sheet that there was an error, and what the error was.** If, however, the error was extreme, or makes it difficult to know how to code certain things, (such as E completely skips a segment or makes eye contact multiple times during segment 2), then flag it, do not code, let a coding supervisor know ASAP, and bring it to the meeting.

It is an error if a segment is more than 45 seconds long, or less than 20 seconds long.

Types of Responses

There are a variety of ways that someone can respond when another person is in need of comfort. The goal of coding these tasks is to capture the diversity of responses that a child can display, as well as to capture the frequency and duration of responses. To do this, we have divided all possible responses into 6 categories: (1) supportive responses (with two subtypes: emotion-focused and problem-focused), (2) negative responses, (3) personal distress, (4) concerned attention, (5) proximity increasing/maintaining, and (6) ignoring E's distress.

EVERY MOMENT of a comforting task can be classified into ONE AND ONLY ONE of these categories. **The only exception is that proximity increasing/maintaining can co-occur with supportive responses or concerned attention.** Some responses may seem to fit into more than one category or none of them at all. To determine which category a response is, you will use a decision hierarchy.

- First, consider whether the response is supportive OR negative OR personal distress. It can only be one of these. (If it is supportive then it may also be proximity increasing/maintaining).
- If it is none of these 3, then consider whether the response is concerned attention. (It may also be proximity increasing/maintaining).
- If it not concerned attention either, and it is also not proximity increasing/maintaining, then it will be coded as ignoring E's distress (by default).
- Also, any activity that is being done before the tasks begins is not coded as anything. If the C has their fingers in their mouth before Segment 1, then this would be considered as nothing. Verses if this happens after segment 1, which would be distress.

Use the following guidelines to decide which category a response fits into:

1. **Supportive responses**: In general, these responses are intended to make the other person feel better. There are two types of supportive responses: **emotion-focused** (i.e., any response oriented towards feelings/emotions/mood and with the goal of improving these things) and **problem-focused** (i.e., any response oriented towards solving or taking action to fix the underlying problem.) Use the following examples as a guide to classify the response in question:

Emotion-focused responses

Physical Soothing (e.g., hugging, patting, rubbing, leaning against E, handshaking). *Note: If the physical comforting happens during the Clipboard task, it may be coded as PF, not EF, because touching E would be in the service of fixing the "problem", while touching in every other task would typically only be to make E feel better.*

Verbal Soothing (e.g., "it's ok", "it happens sometimes", "It's not your fault")

- If child says, "I/it/she/he/they will make you feel better," this is EF because the focus is on E and/or E's feelings. If child says, "I/it/etc will make IT feel better," this is probably PF because the focus is on the Phone/Clipboard/Drawing (and thus on the problem).

Reframing the situation as though it's not so bad, in order to make E feel better (e.g., "don't be sad - it's not so bad", "it's not even that wet"). The child's suggestions can also be oriented towards the future (e.g., "It will get better"), this does not fix or address the problem in an active manner (PF if this is the case), but it reframes the situation to make it seem better because it won't be so bad in the future. Don't mistake this for negatively rejecting E's distress (e.g., "you shouldn't cry like a baby")

- Also anything that is considered to be passive solutions are considered to be reframing the situation as well. The way to identify these comments is to see if the child is suggesting that they or the experimenter should do anything to address the problem (which would be PF). “the world will heal you” is considered EF because the child is not suggesting to put any effort into fixing the problem. Instead, the problem will resolve itself in the future and therefore is reframing the situation to make it seem better because it will solve itself.

Mirroring E's sadness, in a way that is not personal distress ("awwwwww", "I feel bad", "I'm sad too"). Usually these statements have a similar emotional tone to E's distress, or sound sympathetic. They don't have to be exaggerated emotional expressions, however. A quiet child may look concerned and say, "oh no." The child clearly has to relate their pain to E's current situation.

Reflection of personal experience with this same problem in which the personal experience ended positively (e.g., "my daddy dropped his phone, and it was ok"). If the reflection of personal experience ended neutrally, negatively, or did not end, then see the concerned attention section (concerned attention requirements would still apply). However, if the reflection is directly related to the experimenter at any point (e.g. “that is like what happened to you”) would be considered EF, no matter how the story ended.

Compensation (i.e., physically giving OR offering to give/share an object to E in order to help E feel better). Examples of compensation include: getting a book off the shelf and bringing it over to E, sharing the child's own nickels with E, saying, "I could buy you a racecar", saying, "do you want a cookie?".

- NOTE: It's only considered compensation if the material object offered isn't a "problem-fixer" but rather is an "emotion-helper". That is, consider whether the object offered is instrumental in "fixing" the problem at hand (e.g., like giving a bandaid when E hurts her Finger, giving own drawing when E ruins hers) or, instead, is something irrelevant to the problem whose only purpose is to improve E's mood (e.g., like giving a teddy bear or an ice cream cone when E hurts her Finger). If the object offered is an "emotion-helper", it is compensation, because it targets the EMOTION of E, helping her to feel better. If the object offered is a "problem-fixer", it is NOT compensation, and instead is a problem-focused solution, because it targets the PROBLEM of E, helping her to solve it.

Attempts to distract E from her distress by introducing a new toy or activity to E with the intention of cheering her up. This is different from compensation because the child doesn't actually give or offer to give it to E, but just mentions it or holds it up to show E. This could include attempts to bring E back to play.

- Don't confuse attempts to distract with ignoring E's distress. Attempts to distract must include overt efforts to include E in the play, such as showing her a book or handing her a toy, and cannot be simply comments that the child is directing toward E (e.g., "look at this castle I made!"). Attempts to distract are always Experimenter-focused, and not child-focused. A way to tell if it is Experimenter focused is if the child tries to get the E's attention.

Friendly invitations to play (e.g., looking at E, smiling, switching to a new toy, phrasing the invitation as a suggestion for what E could do like “you can still...”). The key component here is that the child is trying to be nice to E while suggesting new play activities. If the child stops showing same friendliness or keeps suggestions the same thing over and over after E clearly says she doesn’t want to, then it is no longer a friendly invitation to play.

- A good way to tell if this happened or not is to see if the child waited for E to response to their suggestions.

Problem-focused responses

Verbal instrumental helping. This category includes all suggestions for fixing the problem (e.g., "I'll buy you another one", "I'll get my mommy to help you", "when I get hurt, I do xx", "you could try to clean it up", "you can go to the doctor or get some medicine "). It also includes suggestions meant to be helpful, or advice (e.g., "you should watch out next time", "be more careful"). **It does not include** statements about how the child did it correctly (e.g., "I pushed my chair back", "I didn't spill my water", "my phone is still ok").

- Anything intended to be helpful toward making the problem or broken item itself better/go away, even if it's not reasonable or logical for the situation. For example, saying, “we can put some sand on it.” While this might seem like nonsense because sand cannot help a phone or hurt finger, if the child is oriented to the situation and trying to help, then it would be counted as PF. We are not coding how much sense a child makes but whether they are trying to solve the problem or not. E.g., a child offers to fix the phone in order to help the finger. This is PF.

Physical instrumental helping. These are physical ACTIONS the child takes to remedy the problem, and may or may not be accompanied by verbal instrumental helping (e.g., trying to clean up mess or fix the phone, wiping the drawing with hand, shaking the phone).

- The child must be doing something ACTIVE to the object to be considered PF and not simply curiosity or CA.
- e.g., MUST BE OBVIOUSLY TRYING TO CLEAN/REPAIR/MEND. USE THE WORDS OF THE CHILD BEFORE AND DURING AND AFTER THE ACTION TO HELP DECIDE THE PURPOSE OF THESE ACTIONS (e.g., "let me get this for you" is a clue that the action that follows is PF).
- Active things include: shaking the phone (rather than just picking it up and looking at it), holding up the drawing and shaking it (rather than just holding it up to look at it), balling up the drawing in order to throw it away or use it to clean off the table, or folding it deliberately to tidy it up (rather than just folding it over to look at the back of it). Moving a single finger across the drawing does not count as PF, as this is just playing with it (not CA, Neg, or PF). But wiping the water off with a hand is PF.
- **But above all, use child's words to help decide if the action is meant to be helpful or is FOR the experimenter's benefit. That may clarify some of these ambiguous actions.**

If the child says something about how his/her mom, other family member or they could help, or ANY OTHER person could help, including the child him or herself, without specifying

what the "help" would be, we will code these as problem-focused. If the child is more specific about what the help would entail, code it accordingly (e.g., "my mom could give you a teddy bear" is emotion-focused).

Asking where another person is, without giving more info, is too vague to be considered PF (e.g., "where the other lady at?", "where's my mom?"). This would be considered CA.

If the child asks a question (e.g. "why don't you get a band aid" or "You have band aids at home"). Even though this is a question, the child has a solution in mind and directly relates it to the experimenter (uses a you). If there is a you in a question and a solution as well, then it is PF.

Future and Present suggestions (e.g., "You should be more careful") are also considered PF. This is because they are trying to fix the problem in the future. Using what happened as an example to change the behavior in the future.

Note: Consider the child's tone of voice, facial expression, and context when deciding if a suggestion or statement is actually supportive, or if it was meant to be callous, demanding, or controlling. For example, the phrase "you should be more careful" could be considered a negative response if it's taunting, callous, or if the child is ordering E. It could also be considered supportive if delivered in the right way. A statement like "you hit your finger" could be taunting and judgmental, or it could be sympathetic.

If you see a response that you think is supportive and is not included on this list, please tell a coding supervisor and it may be added to the manual.

What to do when a response could be classified as both emotion- AND problem-focused:

By their nature, problem-focused responses are often intended to both fix the problem at hand AND to improve the emotions of E. However, we cannot guess at the intentions of the child and can only use what we see and hear from the child. Therefore, responses intended to fix the problem will only be coded as problem-focused. If, on the other hand, the child explicitly mentions feelings/emotions or says something that shows he/she is thinking about the internal state of E (e.g., "I'm sorry", "it'll be ok", "don't worry", "don't be sad", "are you alright?", "Make you feel better"), then we can code for the presence of an emotion-focused response as well. Therefore, some statements can be double-coded as both problem- and emotion- focused WITHIN THE SAME SENTENCE, as long as both elements are present. For example, if a child says, "it's ok, I can buy you another one", then "it's ok" will be coded as emotion-focused, and "I can buy you another one" will be coded as problem-focused. Another example of both in one sentence is "You can go to the doctor and you will feel better!". The part about going to the doctor is PF, but the "feeling better" part is EF because the child is addressing E's distress and/or feelings.

****** If the action is definitely meant to comfort E but there is no way to know if the action was EF or PF, always default to PF.**

2. Negative responses: In general, these responses would typically make the Experimenter feel worse about her situation. Examples include:

- Laughing at E. (If you're not sure whether it's a laugh or not, then code it as though it were not)
- Teasing/taunting/mockng (e.g., while smiling, "you hurt yourself again!"). This is not to be confused for sympathetically restating the problem.
- Callous statements (e.g., "that's what you get", "you suck")
- Statements or "suggestions" that seem controlling or demanding (e.g., "don't spill it anymore!!!") This is not to be confused with helpfully giving advice.
- Scolding (e.g., "Why did you do that, you shouldn't do that").
- Any ambiguous sentence (could be interpreted as nice or mean, such as "you should be more careful") that is said in a negative way, such as yelled or screamed.
- Any sentence that brings all the focus away from E and onto the child, especially if said in a negative tone of voice.
- Intentionally making the situation worse (e.g. ripping or ruining E's paper, dropping the phone). Note: this does not include accidentally ripping the drawing while taking off the stickers on E's paper.
- Also includes intentionally holding back a way to help because of E's emotional state
- Any past tense suggestion (e.g. "You should have been more careful") with another negative response listed above (laughing, mocking, etc.)
- Smiling can also be considered negative if it is followed by or just after yelling, scolding, teasing, etc. Smiling is considered negative if it occurs in the interval before or after the negative event.

Consider the child's tone of voice, facial expression, and context when deciding if a suggestion is helpful, or if it was meant to be callous, demanding, or negative. There should be no doubt when coding negativity. The phrase "you should be more careful" could be considered a negative response if it's taunting, callous, or if the child is ordering E. It could also be considered supportive if delivered in the right way.

CONTEXT IS KEY.

If you see a response that you think is negative and is not included on this list, please tell a coding supervisor and it may be added to the manual.

3. **Distress / arousal:** Sometimes, a child becomes upset when another person is upset. This is always self-focused. Examples of personal distress include:

- Crying, whining, or whimpering because child is distressed. If there are other cues that point to a different motivation (e.g. child can't reach across the table, child is being impatient), these would not be coded as personal distress
- Very obvious facial distress (e.g., face falls and looks like about to cry). This does not include anything that could be confused with concerned attention; it must be clearly distress. This expression can also be instantaneous as well.
- Physical self-soothing (e.g., thumb-sucking, hand wringing, touching eyes/face) for at least three second
- Verbal statements of personal distress (e.g., "I wanna go home", "I don't like this").
- Speaking in a strained, upset-sounding way.
- Upset about own thing they messed up
- Defensiveness (e.g. "It's not MY fault").

- Active disengagement is distress. The child does everything in their power to not pay attention to E's problem or pain

If you see a response that you think shows personal distress and is not included on this list, please tell a coding supervisor and it may be added to the manual.

4. **Concerned attention (CA):** Only if a response cannot be classified as any of the three categories above, then it may be considered for concerned attention. Please understand what CA is before attempting to code it. This is because often, you will just have to use your best intuitive judgment in deciding whether the child is showing CA "in spirit". We think of CA as an outward sign that the child is concerned about E: the child's thoughts are tuned into E's distress and the child has entered E's mental world. The child is allowing him/herself to enter E's "zone of distress" by acknowledging the situation. The child could express this concern in two ways: overtly or through non-verbal means.

What is NOT considered CA?

- NODDING HEAD OR SAYING YES IN RESPONSE TO E'S QUESTION IN SEGMENT.
- If the child is in the midst of an EF or PF solution, child cannot also get credit for CA. Be sure to watch out for non-verbal EF or PF (e.g., child goes to cabinet to get a book for E, brings book back, and is holding it up for E to see, child is holding out her drawing for E to take), because that whole block of time cannot be considered CA.
- If the sentence child says qualifies for overt CA (below) but is also part of the EF or PF solution, then it is not CA (because it's already considered part of the comforting solution).
- ANY CARRYOVER

Overt (verbal) CA: If a child says something that does not qualify as comforting, yet shows that he/she is acknowledging the situation or that something bad happened, then it's CA. This could include something showing that they are thinking about E's plight, but without explicitly offering a solution or comfort.

It is overt (verbal) CA if: Child says or does any of the bullet points listed below (for any length of time, even a second or two), AND does one of the following:

- shows reduced/minimal play for at least 3 seconds during or very near to the time the statement was made
 - or shows very obvious facial concern for any length of time (i.e., is not simply acknowledging the situation, but is CONCERNED about the situation)

- "I can't help you," if said in a tone that suggests the child is sympathetic.
- "I have bandaids at home." Again, consider tone of voice and facial expression. This is not problem focused because the child does not related the suggestion to the Experimenter.
- Seeking more information about the situation (e.g., "what happened?", "are you hurt?", "does it hurt?")
- Reflecting on a personal experience similar to E's problem, in which the ending was neutral, negative, or doesn't have an end (e.g., "I went to the phone store when I broke it,

and it cost a lot of dollars"). Basically, this includes any ending that is not positive, because a positive ending implies that it will also turn out OK for E (in which case, this is EF comforting).

- Sympathetic restatement of what happened (e.g., "you hurt your finger??", "your drawing!") Consider the child's tone of voice, facial expression, and other cues of sympathy to determine if the statement is truly concerned. We include these types of statements into CA because it is a way of connecting sympathetically with E's plight, entering her zone of distress, and acknowledging that something bad has happened to her, but it does not qualify as comforting.
 - But, getting more information about E's emotional state **is** considered emotional focused response. An example of this would be "are you sad right now?" or "you okay?"

"Let me see..." (or showing other obvious signs of "thinking" about what to do for at least 3 sec, such as looking up and tapping chin or saying, "hmmmmmm", or looking around the room for something).

If you're not sure what child says, but child is clearly oriented to the situation (and you can't give them credit for any other code), then code as CA (see nonverbal CA section below).

Anything that is a past tense suggestion (e.g. "You should have been more careful"). Unless paired with any negativity (e.g. smiling, laughing or a scolding tone).

Any miscellaneous stories or thoughts THAT RELATE even in the slightest TO THE CURRENT PROBLEM but do not end well are also considered Overt Ca.
Child is thinking about the problem.

Non-verbal CA: Even though the child is not saying or doing anything, we can tell that he/she is concerned about the situation or about E. We can tell because the child becomes focused on the scene, often stops playing and talking, and stares at E with a concerned expression. Sometimes, the child shows momentary gaze aversions from E (1 second or less), because the situation is hard to look at, and so the child quickly glances away and looks back again.

To be coded as concerned attention, the child must be doing the following things **simultaneously for at least 3 continuous seconds**:

- MUST be oriented toward the scene, which includes looking at E or the object (i.e., turned toward her and paying attention to what is happening with her). If, during this time, the child momentarily looks away from E (i.e., 1 second or less) and then looks back again, that is ok. This is simply a gaze aversion, and can happen during CA.
- MUST have a neutral/concerned face (i.e., not smiling or crying or very obviously distressed)
- MUST be playing/doing an activity less than he/she was moments before the task began (e.g., reduced energy in play, stopped swinging legs or arms as much, stopped play altogether). This is because reduced play indicates that the child is "tuned into" E's pain and is paying more attention to E's situation than to previous play. If the child wasn't

playing at all before the scene began, then reduced play will simply be not playing at all. It is, however, possible for the child to be walking or moving closer to E while showing concerned attention.

- Cannot overlap with words or actions that have already been classified as comforting, negative, or personal distress.
- The child could be listening to something E is saying or listening to E respond to him/her as part of an ongoing conversation. If the child is having a conversation with E, they MAY get codes for CA only while listening to E, as long as they otherwise meet all the criteria for CA.

5. Proximity increasing/maintaining: This code is for any physical movement towards E. This only includes steps, so leaning forward does not count. The ONLY exceptions are:

- Child is on a mission to reach another location in the room and just passes by E, and does not stop. If child stops for any reason, and looks at E or the situation (for at least 2 seconds), then it's proximity.
- Child must clear the table in order to get proximity for (drawing and phone task). They must go at least around the bend in order for the movement to be considered a new destination.
- Once at their destination, if child turns around and looks at E/situation (for at least 2 seconds), this is proximity (IF the destination is closer/as close to E than the child's original position, such as by the box of sand toys). If the destination is farther than original position (such as the cabinet or the nickels by the door), turning around to look at E/situation is NOT proximity.
- Once at the destination, any movement toward E is proximity and is subject to the same rules that applied to movement toward E from the original position (behind the sandtable).
- What if the child moves to ANOTHER destination (i.e., has a goal/place in mind and doesn't stop): see the first bullet point. Once at this new destination, see the second bullet point. In this case, "original position" refers to child's FIRST position (when the task started; not the previous destination).
- Side to side stepping does not count if the child stays behind the sand table. Child must come out around the table (if seated) to get proximity (or be on her way out from behind sand table plus on her way directly over to E).
- If the only proximity in a given interval is carry-over from the previous interval, child must hold that position for at least one whole second to count as proximity in that interval.

If the child is wandering around the room, pacing, or appears to have no particular destination or goal in mind, you cannot use the "destination" rule stated above. If this happens, the child is increasing/maintaining proximity whenever he/she is CLOSER to E than when child first started to wander.

6. Ignoring E's Distress: This code will capture any response that cannot be coded into any of the above 5 categories. As a result, this code will not reflect the child ignoring E or the entire

situation, but rather it should reflect the child ignoring SPECIFICALLY E's distress. Examples include:

- Keeping attention focused on activity
- Smiling at E (i.e., not concerned attention because not neutral/concerned)
- Making irrelevant conversation (e.g., "my birthday is tomorrow")
- Staring at the floor
- Statements about the child's own property not being damaged (e.g., "MY phone isn't broken", "MY drawing isn't wet")
- Statements about the child's play or activity that he/she has been occupied with (e.g., "look, I finished the puzzle!")
- Statements about a toy/activity that aren't meant to cheer E up (e.g., "I wanna keep playing dinosaurs with you.")
- When E asks, "is there anything you can do to help me feel better?", if the child simply says, "yes" or nods head (or says "no" or shakes head), without actually saying or doing anything in addition to this, this will mostly likely be coded as Ignoring E's distress. That is because it is not supportive, negative, personal distress, or CA.
- Any response that cannot be classified

Coding setup

1. Open the INTERACT program (you will need to close and reopen between every task).
2. Select "Open existing data file" and select the template of the child/task you are coding. Each task has its own file, but you want to **always code the tasks in the order they were presented to the child.** Some children will start with Phone, and others will start with Drawing. Clipboard will always be last (unless there are unusual circumstances, such as child did not cooperate and a task had to be skipped, fire drill, etc). Start with the task that happened first, then code the second task, then the last task.
3. Double click "Set 1" on the lefthand side of the screen, and several green pencils should appear below it. These are the 10-second timeslices.
4. Click on the small manila folder at the top left corner of the small Control Panel window. Select the correct video to open. The video should appear in a separate window.
5. To jump straight to the task, double click on the white space to the left of the first green pencil. If you want to view the task from beginning to end without breaks, use the Control Panel (press the righthand green arrow to play it through). If you want to view the task with the 10-second breaks, use the green pencils (double click the white space next to the timeslice you want to view).
6. Open the transcript (if available). It will be located on the U: drive. Use this to help you understand speech when you're not 100% certain of what the child is saying. Always have it open in the background.
7. Get the correct post lab notes from the Wave 1 or Wave 2 outcome drawer (located in the very back of the cabinet).

8. Get a blank paper coding sheet of the correct task, and fill in the basic information at the top. USE THE START AND STOP TIMES SPECIFIED IN INTERACT (the first and last times, located next to Set 1).

9. Now that you have everything in front of you, BE VERY SURE YOU ARE CODING THE CORRECT CHILD. Play the video from the very beginning until the white board reveals the subject (e.g., S1) and participant number (e.g., 4011). Verify that it matches the INTERACT template you have open, the video you opened, the transcript you have open, and the post lab notes in front of you.

10. If they all match, then write the participant number at the top of EVERY PAGE OF your paper coding sheet. Now you are ready to follow the coding procedure below.

11. You may also want to have a blank sheet of paper or Word document open to jot down any questions/comments for the group that arise during coding that you can bring to the next coding meeting.

Coding Procedure

1. Make general notes on your paper coding sheet. Before you begin, take out the post-lab notes sheet for this participant and read the Prosocial Notes section for any relevant details about this task. First, write the physical description of the child, and verify that it matches the child in the video you have open. Then, write all relevant notes in the "Notes" section of your coding sheet. This could include notes specifically about this particular task (phone, Clipboard, or drawing) OR about comforting tasks in general OR about the entire lab visit (whatever is relevant to this task). If there is nothing, write "None". Keep these notes in mind while coding.

2. Watch the entire 2 minute task all the way through. Again verify that you are coding the correct child by making sure the physical description matches what you see. While watching, get a feel for this child's behavior and become familiar with the task. Also take note of when you think the Experimenter moved from one segment to the next. Then code the following items:

- If phone task: Did E say "the screen is broken! It's all cracked!", or something similar? If clipboard task: Did E say, "Oh my finger!", or something similar? If drawing task, did E say, "oh no, my drawing", or something similar? (1=yes, 0=no). IF NO, WHAT DID E SAY? Write it verbatim. IF YES, MARK AN X.
 - Also, the prompt can happen anytime after the initial 15 seconds. **If 15 seconds have past since the start and there has not been a prompt, list what E said, and indicate there was a segment error.**
Did E make any errors with regard to segments? This could include (but is not limited to): stating the problem or looking at the child during segment 1 (other than the initial prompt or in response to a direct question from child), looking at the child during segment 2, NOT looking at the child during segment 3, NOT stating the problem during segment 2, asking "is there anything you can do...?" during segment 3, NOT asking 2 questions during segment 4, NOT looking at the

child during segment 4. It can also happen if one segment is > 45 seconds or <20 seconds (if a segment is =45 or 20 seconds, then there is no error.) (circle Y or N) During which segment(s) did the errors occur? As an example, if E accidentally looked at the child at the very beginning of segment 2 (the transition INTO segment 2), mark the error as occurring in segment 2. Circle all that apply (1, 2, 3, or 4). IF YES, DESCRIBE THE ERROR.

During which segment of the task did the child first physically comfort E? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not physically comfort).

Note: Code this as the segment within which the first moment of physical contact was made to soothe E.

Physical comforting includes: any touching that was made as the result of a PF or EF comforting strategy (e.g., hugging, placing a hand on E, putting a pretend banda-aid on E's finger). It does not include touches that happened as the result of some other, non-comforting goal, or accidental touch, or cases in which E touched the child and not the other way around.

- During which segment of the task did the child first physically TOUCH E in a NON-comforting way? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not physically touch in a non-comforting way).

Note: Code this as the segment within which the first moment of physical contact was made. Examples include: Incidental touch, like brushing against E's arm while doing something else, pulling E toward the door because child wants to play outside, bumping into E.

Physical touch includes incidental or accidental touches or those in service of a non-comforting goal. It does not includes touches that the experimenter initiated. If there is any ambiguous situation where a touch might have happen, then look at the lab notes. If the experimenter mentioned a touch then there is a touch. If not, then always side with no physical touch.

3. Now, you will break the task up into 10-second intervals ("timeslices") in order to see how frequently the child shows each of the five types of response (i.e., supportive, negative, personal distress, concerned attention, and proximity increasing/maintaining). Because all comforting tasks were approximately 2 minutes long, each task will have approximately 12 timeslices, but the number may vary as individual tasks may have lasted slightly longer or shorter than 2 minutes. ADD THE TOTAL FREQUENCY OF EACH RESPONSE ON YOUR CODING SHEET, BUT DO NOT INCLUDE THE FINAL INTERVAL IF IT IS LESS THAN 8 SECONDS LONG. You do not even need to code final intervals that are less than 8 seconds. The only exception is when E stops the task due to physical comforting. In this case, we want 1 and only 1 interval to capture that comforting behavior. Do not throw it out, even if it's less than 8 seconds long. The entire interval will be coded and included in

the totals for all codes in this case. If the child physically comforts and E does not stop the task, or if the child physically TOUCHES (i.e., would not get an EF score), then stick to the regular rules.

Step 1. COMFORTING: Watch each 10-second timeslice (one at a time) to code for the presence of an emotion-focused and/or problem-focused supportive response in that timeslice.

- Does any portion of the given timeslice contain any portion of an emotion-focused response that is at least 1-second long OR that contains at least 1 full word? (1=yes, 0=no)
- Does any portion of the given timeslice contain any portion of a problem-focused response that is at least 1-second long OR that contains at least 1 full word? (1=yes, 0=no).

Step 2. NEGATIVE RESPONSES: Watch each 10-second timeslice (one at a time) to code for the presence of a negative response OR personal distress in that timeslice.

- Does any portion of the given timeslice contain any portion of a negative response that is at least 1-second long OR that contains at least 1 full word? (1=yes, 0=no).
- Does any portion of the given timeslice contain any personal distress that is at least 1-second long OR that contains at least 1 full word? (1=yes, 0=no).

Step 3. CONCERNED ATTENTION: Watch each 10-second timeslice (one at a time) to code for the presence of concerned attention in that timeslice.

Does any portion of the given timeslice contain overt CA or AT LEAST 3 FULL SECONDS of non-verbal CA? (1=yes, 0=no). *Please remember that concerned attention cannot occur AT THE SAME MOMENTS as any of the above 3 types of response. However, a given 10-second timeslice may contain codes for supportive response AND concerned attention (or negative and concerned attention, or personal distress and concerned attention), but these codes must have happened at different moments within that timeslice (e.g., supportive response ended within the first 3 seconds, and concerned attention began immediately after it). CA can't carry over.*

NOTE TO CODERS: If it's non-verbal CA, a timeslice must contain within it a full continuous 3 seconds as a stand-alone interval to be coded as having concerned attention.

Step 4. PROXIMITY: Watch each 10-second timeslice **one more time** (one at a time) in order to code for the child increasing OR maintaining proximity to E.

At any point during the given timeslice, did the child exhibit proximity increasing/maintaining for at least 2 seconds? (1=yes, 0=no).

Step 5. IGNORING: After you have coded all 5 types of response in all 10-second timeslices, code for the lack of any response in each timeslice (i.e., ignoring E's distress). You don't need to watch the timeslices again to do this.

For each timeslice: Were there NO types of response coded for in this timeslice? (1=yes, there were no coded responses, 0=no, there was at least one coded response).

Step 6: Enter the number of intervals that were calculated in your total. This won't include rows with 999 (missing data), or intervals of less than 8 seconds long (unless child physically comforted and E ended the task early because of this - then you WILL include that interval in the total).

Note for if the pre-made template gives you the wrong number of segments and does not end at the correct time: Calculate the number of seconds in the "real" final interval to the best of your ability. If it's close to the cut-off point (7 or 8 seconds), then consider it being only 7 seconds.

4. After coding the timeslices, answer the following questions on your coding sheet. Go back to view the video as many times as needed:

- During which segment of the task did the child first begin an EMOTION-FOCUSED supportive response? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not display an emotion-focused supportive response).

Note: Code this as the segment within which the child first begins to say or do the emotion-focused supportive response.

- During which segment of the task did the child first begin a PROBLEM-FOCUSED supportive response? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not display a problem-focused supportive response).

Note: Code this as the segment within which the child first begins to say or do the problem-focused supportive response.

- During which segment of the task did the child first begin a negative response? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not display a negative response).

Note: Code this as the segment within which the child first begins to say or do the negative response.

- During which segment of the task did the child first begin to show personal distress? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not display a negative response).

Note: Code this as the segment within which the child first begins to show the personal distress.

- During which segment of the task did the child first begin to increase proximity to E? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not increase proximity).

- Did the child mention his/her/anyone's mom/dad/grandparent for any reason?

Also mark on the coding sheet the timestamp for when the mention BEGAN, as well as copy verbatim what the child said.

5. Global Score - Watch the task 1 more time from beginning to end. Mark quick bullet point notes about the types of things the child said or did during the task. Rate each bullet point in terms of its quality of comforting. Count the total number of unique strategies.

Use these bullet points to help you code the global score.

What is your overall impression of how comforting this child was toward E? *Note: this code should be done immediately after the other codes were entered, so the child is fresh in the coder's mind.*

All previous scores have only considered frequency and latency of the response, leaving us unable to differentiate between a child who gives away their own possessions from a child who simply gives advice. This global score will capture the diversity, quality, and activity of child's attempts to comfort. Consider the number of DISTINCT attempts, including the creativity seen in the diversity. A child who suggests the same thing over and over will not be treated the same as a child who suggests the same number of things but which are all distinct and creative. Also consider the quality of attempts, especially sweet statements or offers, big gestures, and offers to give E the child's OWN possessions (e.g., nickels, balloon, drawing). Also, the quality of a persistent attempt will be higher than that of an attempt made just once. Also consider the activity of the child's attempts (e.g., a child who goes to the shelf to get something, or to the door to look for help, is not the same as a child who sits in her chair and continues playing while simply saying suggestions). You will also inevitably consider the frequency of comforting, amount of concerned attention, proximity, ignoring, attitude, general demeanor, negativity, etc. The amount of proximity is also the deciding factor if wavering between two scores.

1 - Not at all comforting. To get this score, a child may:

- Show no sign of being concerned about the experimenter's distress and make no effort to comfort her
- Show concerned attention within the first 15 seconds of the task, but subsequently shows no concerned attention and no comforting behaviors
- Make one or two brief and minimal efforts to comfort, with very little to no concerned attention
- Make a few half-hearted attempts to comfort, but largely ignores or acts negatively toward E
- Child is personally distressed for much of the time and unable to focus on E's needs

2 - In between a 1 and 3. (for ex: at least 70% CA but no attempts to comfort, not engaging E much or at all, and no proximity; or at least 50% CA with 1 minimal attempt to comfort)

3 - Somewhat/moderately comforting. To get this score, a child may:

- Attempt at least 3 or 4 distinct mid-quality ways to comfort, with concerned attention for $\geq 33\%$
- Attempt at least 2 distinct and mid- to high-quality ways to comfort with concerned attention for $\geq 50\%$
- Display concerned attention for more than 75% of the task, with one mid-high or high-quality attempt to comfort.

4 - In between a 3 and a 5.

5 - Very comforting. To get this score, a child may:

- show ANY large display of physical comfort (e.g., a hug) at any point
- physically comfort with a handshake, rub, or pat within the first 30 sec, or in addition to trying at least 3 other comforting strategies
- attempt to comfort for more than 75% of the duration of the task, MOSTLY mid- to high-quality comforting; when child wasn't comforting there was CA or Proximity.
- Attempt at least 7 distinct mid-quality ways to comfort.

NOTE: If any CLEARLY negative responses or some OBVIOUS OR PERSISTANT physical distress (e.g. almost crying)(distress in 3 or more time slices) responses are present, knock the global score down one point

6. Once you've finished filling out the paper coding sheets for ALL 3 TASKS, open your SPSS document located in your folder on the U:drive. Carefully transfer the codes into the SPSS document, verifying that you're on the right row, and are starting at the correct column. REMEMBER that when you add up the timeslice totals, DO NOT INCLUDE THE FINAL TIMESLICE IF IT'S LESS THAN 8 SECONDS.

7. Save your SPSS document twice, so that you always have 2 copies. Save in between every child.

- Sometimes, you are unable to code an event or an entire situation. If this is the case, then input the number "999" into the excel sheet. The best example is when an entire video of a situation, like Clipboard, is missing. Before marking "999", be sure to code whatever you can based on the post-lab notes.

8. After all 3 tasks have been coded and entered into SPSS, go back and double check that all codes were transferred correctly from paper to SPSS.

9. Clip all 3 paper coding sheets together and file them in your folder. Store the folder on the wall behind the door and bring to every coding meeting. Put completed packets into your file folder in the cabinet.

CLIPBOARD TASK CODING SHEET

1: ID 4 2: Experimenter _____ S _____
 Start time _____ Stop Time _____
 3: CodeName _____ 4: Code #: _____ 49: ClipOrder: 1 2 3

A. General Notes/visual description:

B. 1st WATCH - ORIENTATION, CHECK FOR EXPERIMENTER ERRORS, TOUCHING

Did the experimenter give the prompt at the beginning?

50: ~~Clip_Prompt~~ Yes=1 No=0

If no, what did E say? _____

Did the Experimenter make a segment error?

51: ~~Clip_SegError~~ Yes=1 No=0

Circle all segments where error occurred 1 2 3 4 None

Describe the error: _____

During which segment did the child first provide physical comfort to E? (5=did not ever)

52: ~~Clip_PhysComfort_seg~~ 1 2 3 4 5

Did E end the task due to physical comforting?

53: ~~Clip_PhysComfort_EndTask~~ Yes=1 No=0 Not Applicable=2

During which segment did the child first touch E in a non-comforting way? (5=did not ever)

54: ~~Clip_PhysTouch_seg~~ 1 2 3 4 5

Did E end the task due to physical touching?

55: ~~Clip_PhysTouch_EndTask~~ Yes=1 No=0 Not applicable=2

CLIPBOARD TASK CODING SHEET

C. 2nd THROUGH 5th WATCHES - FREQUENCY OF RESPONSE TYPES

2nd 3rd 4th 5th

Final timeslice (# secs)	Timeslice	EF	PF	Negativity	Distress	CAs	Proximity	Ignore
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
TOTALS (not including timeslices of <8 seconds)								

56: Clip_EF 57: Clip_PF 58: Clip_Neg 59: Clip_Distress 60: Clip_CA
 61: Clip_Proximity 62: Clip_Ignore

Number of timeslices included in totals count: _____

Summary of child's actions and attempts to comfort:

CLIPBOARD TASK CODING SHEET

D. LATENCY OF RESPONSES (DERIVED FROM BOX C) - Watch segments again as needed

During which segment did the child first show an emotion-focused response (circle 5 if never)?

64: ~~Clip_FF_Seg~~ 1 2 3 4 5

65: ~~Clip_FF_Pres~~ 0 1

During which segment did the child first show a problem-focused response (circle 5 if never)?

65: ~~Clip_PF_Seg~~ 1 2 3 4 5

65: ~~Clip_PF_Pres~~ 0 1

During which segment did the child first show a negative response (circle 5 if never)?

66: ~~Clip_Neg_Seg~~ 1 2 3 4 5

65: ~~Clip_Neg_Pres~~ 0 1

During which segment did the child first show a personal distress response (circle 5 if never)?

67: ~~Clip_Distress_Seg~~ 1 2 3 4 5

65: ~~Clip_Distress_Pres~~ 0 1

During which segment did the child first begin to increase proximity to E (circle 5 if never)?

68: ~~Clip_Proximity_Seg~~ 1 2 3 4 5

65: ~~Clip_Proximity_Pres~~ 0 1

Was a "mom or mother", "dad or father", or grandparent mentioned?

69: ~~Clip_Caregiver~~ Yes=1 No=0

Timestamp of start of phrase: _____

Record verbatim phrase:

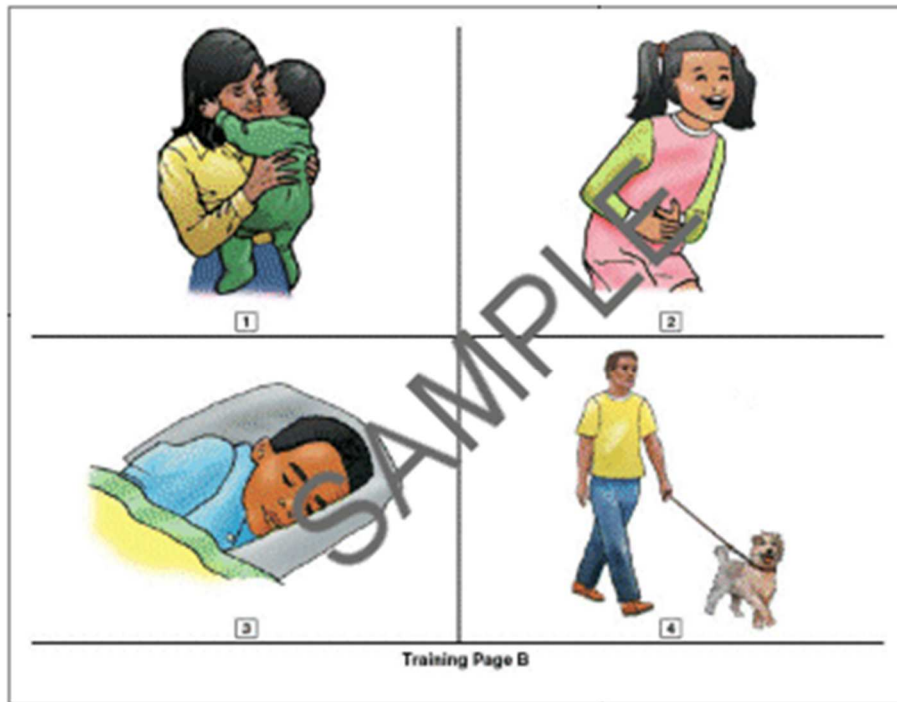
E. FINAL WATCH - GLOBAL CODE

What is your overall impression of how comforting this child was toward E?

****Consider diversity, quality, and activity of child's attempts****

70: ~~Clip_Global~~ 1 2 3 4 5

Appendix G: PPVT Example



Experimenter Prompt:
“Can you point to sleeping?”

Tables

Table 1

Attachment Security Completion Task Inter-rater Reliability

Variable	Alpha
Knee Security	.83
Monster Security	.86
Reunion Security	.87
Knee Classification	.80
Monster Classification	.80
Reunion Classification	.70
Overall Classification	.75
Knee Disorganization	.73
Monster Disorganization	.84
Reunion Disorganization	.78

Table 2

Caregiving Story Completion Task Inter-rater Reliability

Variable	Alpha
Big Dog Caregiving Script	.83
Swimming Pool Caregiving Script	.78
Sleepover Caregiving Script	.82
Lost Toy Caregiving Script	.92

Table 3

Clipboard Task Inter-rater Reliability

Variable	Alpha
Amount of Emotion Focused Responses	.73
Amount of Problem Focus Responses	.90
Amount of Distress	.43
Amount of Hostility	.59
Amount of Concerned Attention	.78
Global Score	.79

Table 1. Distribution of Children Participants by Attachment Classification

	Secure (<i>n</i> = 50)		Insecure – Avoidant (<i>n</i> = 21)			Insecure – Disorganized (<i>n</i> = 16 ¹)		
(%)	<i>M</i> (<i>SD</i>)	Range	<i>n</i> (%)	<i>M</i> (<i>SD</i>)	Range	<i>n</i> (%)	<i>M</i> (<i>SD</i>)	Range
64%)			11 (52%)			4 (25%)		
36%)			10 (48%)			12 (75%)		
52%)			8 (38%)			8 (50%)		
46%)			12 (57%)			7 (44%)		
2%)			1 (5%)			1 (6%)		
	53.40 (3.43)	48 - 60		54.20 (3.25)	48 - 59		53.5 (3.74)	49 - 60
	81.66 (21.20)	33 - 116		84.62 (21.94)	15 - 112		79.0 (26.74)	23 - 120

¹Unclassifiable. This participant was a non-white female, 52 months old, with a vocabulary score of 56.

Table 5

Correlation Matrix of Experimental and Demographic Variables

	1	2	3	4	5	6	7
<i>Experimental Variables</i>							
1. Mean Attachment Security	-	.35***	.31**	0.01	-0.32**	0.03	0.08
2. Mean Caregiving Script		-	0.06	-0.17	-0.12	-0.01	0.28**
3. Global Comforting Score			-	0.20 [†]	0.10	0.02	-0.06
<i>Demographic Variables</i>							
4. Race (Dichotomized)				-	0.04	0.03	-0.48***
5. Child Sex					-	-0.12	0.05
6. Child Age						-	0.14
7. Vocabulary Score							-

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6

Bootstrap Analysis of the Magnitude and Statistical Significance of the Direct and Indirect Effects

Paths for the direct and indirect effects	β	z	p	95% CI
Attachment -> Comforting (Path C)	.33	3.07	0.002	[0.15, 0.68]
Attachment -> Caregiving (Path A)	.35	3.53	0.001	[0.05, 0.20]
Caregiving -> Comforting (Path B)	-0.05	-0.49	0.62	[-0.93, 0.55]

Figures

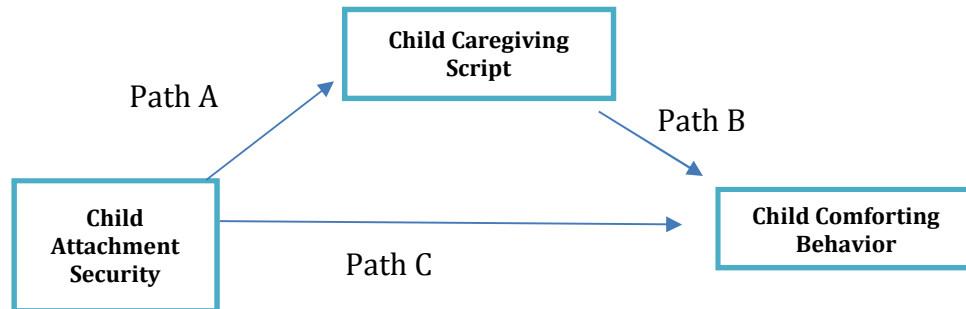


Figure 1. The conceptual model being proposed, linking children's attachment security to children's comforting behavior indirectly through children's caregiving scripts.



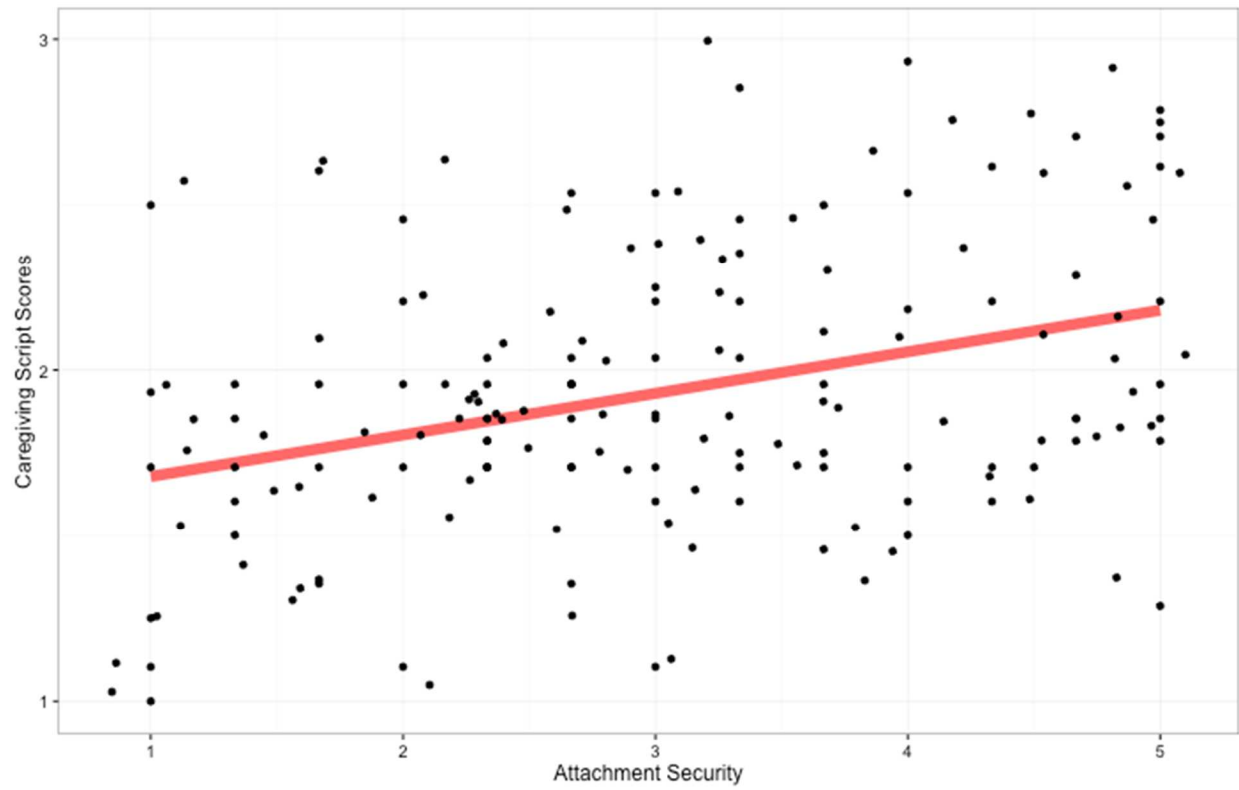


Figure 3. Scatterplot showing the relation between Attachment Security and Caregiving Script Scores.

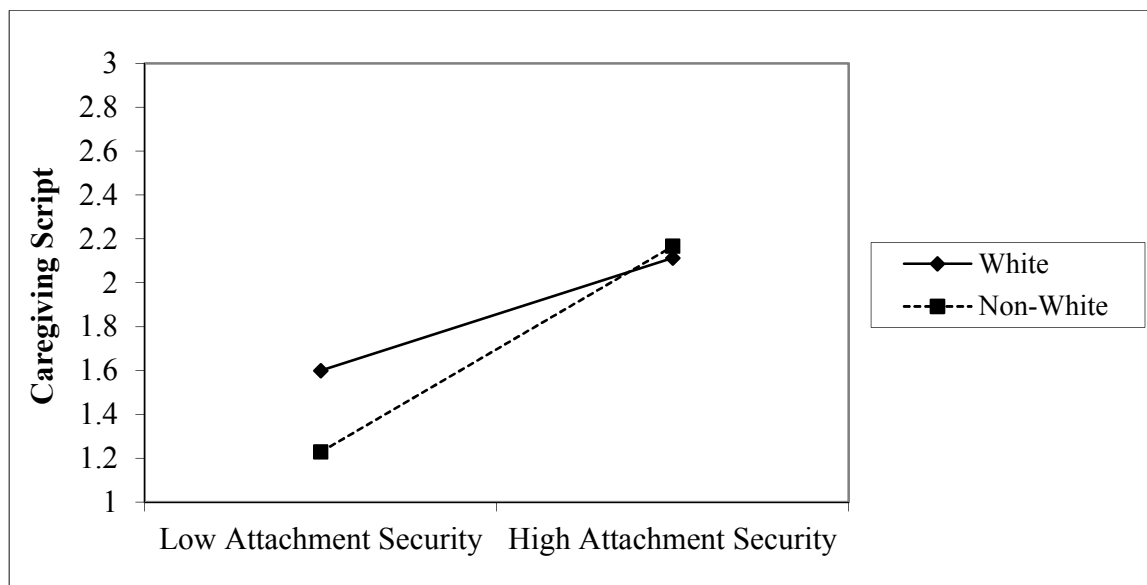


Figure 4. Two-way Interaction between Attachment Security and Race in predicting Caregiving Scripts.

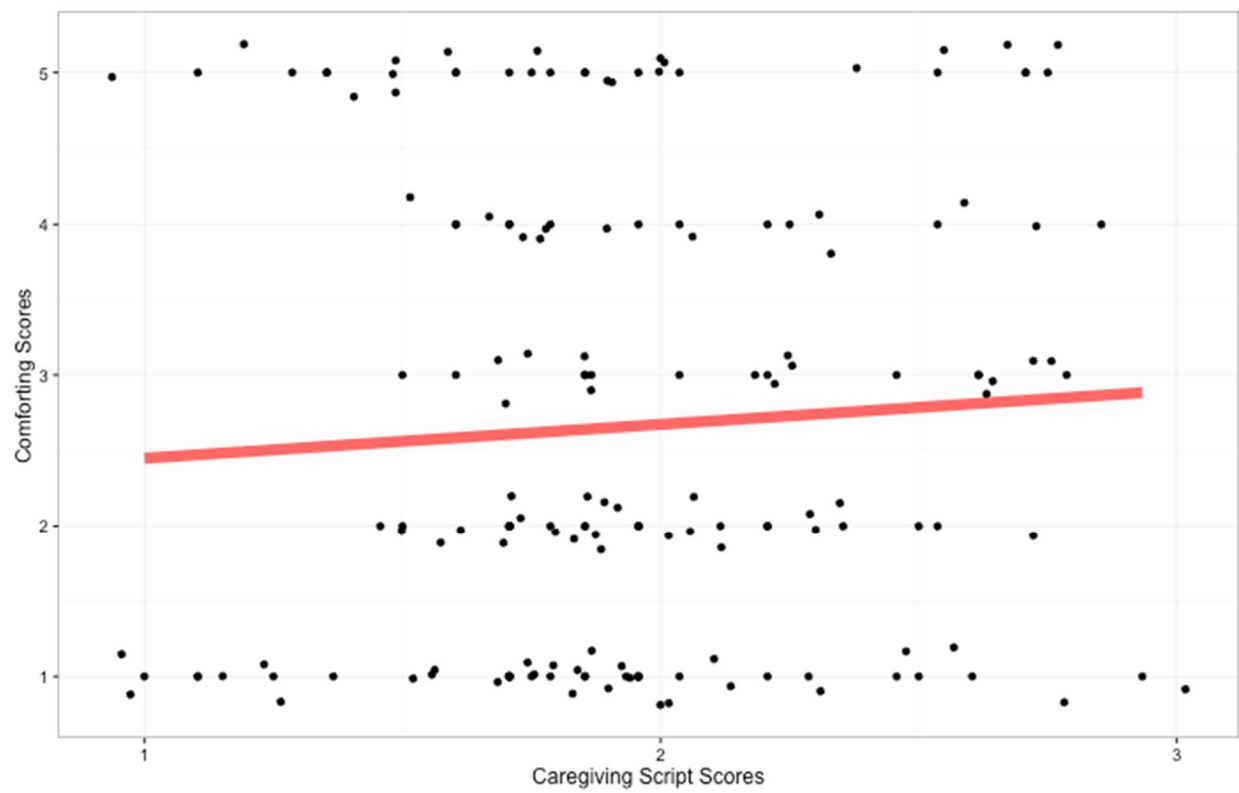


Figure 5. Scatterplot showing the relation between Caregiving Script scores and Clipboard – Global scores.

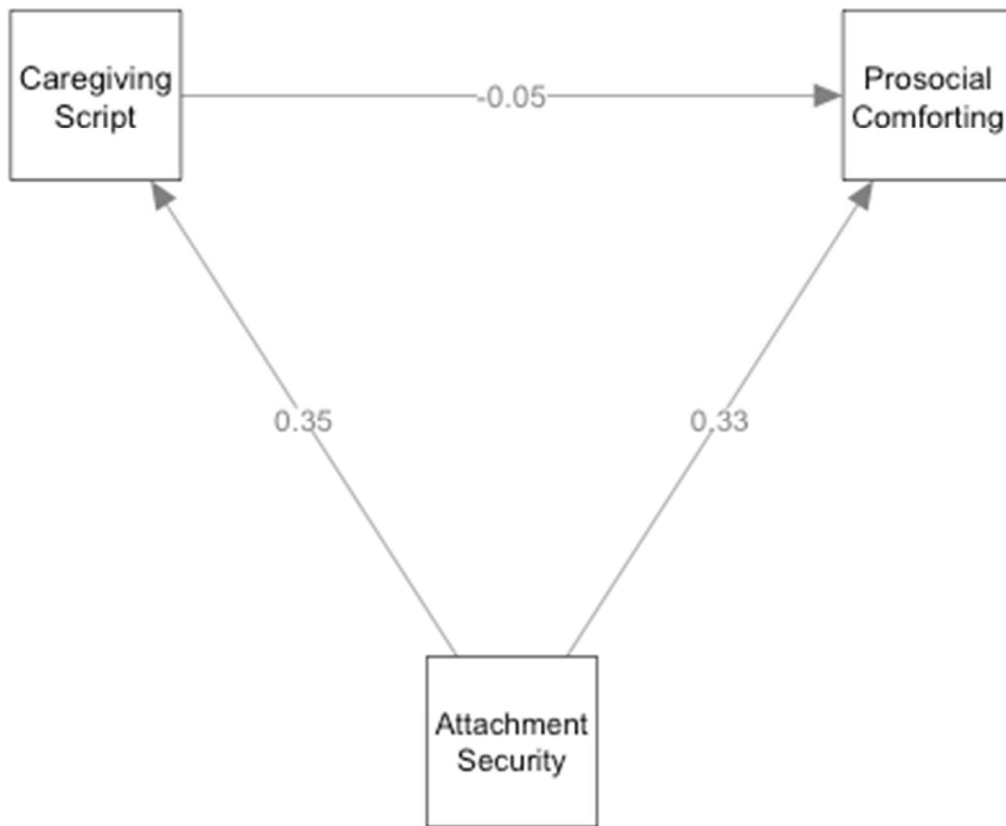


Figure 6. The Mediation Model. $N = 88$.

References

- Aber, J. L., Slade, A., Berger, B., Bresgi, I., & Kaplan, M. (1985). *The Parent Development Interview*. Unpublished manuscript.
- About, F. E. (1992). Conflict and group relations. In C. U. Shantz & W. W. Hartup (Eds.), *Conflict in child and adolescent development* (pp. 356 – 379). Cambridge, U.K: Cambridge University Press.
- About, F., E., (2003). The formation of ingroup favoritism and outgroup prejudice in young children. *Developmental Psychology*, 39, 48 – 60.
- Ainsworth, M. D. S., & Bell, S. M. (1970). Attachment, exploration, and separation: Illustrated by the behavior of one-year-olds in a strange situation. *Child Development*, 41, 49-67.
- Ainsworth, M. S. (1979). Infant-mother attachment. *American Psychologist*, 34, 932-937.
- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (2014). *Patterns of attachment: A psychological study of the strange situation*. Psychology Press.
- Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2009). The first 10,000 Adult Attachment Interviews: Distributions of adult attachment representations in clinical and non-clinical groups. *Attachment & Human Development*, 11, 223-263.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Beier, J. S., Gross, J. G., Brett, B. E., Stern, J. A., Martin, D. R., & Cassidy, J. (2016). *Helping, sharing, and comforting in young children: Links to individual differences in attachment*. Manuscript in preparation.
- Bowlby, J. (1969), Attachment and loss, Vol. 1: Attachment. New York: Basic Books

- Bowlby, J. (1973). Attachment and loss, Vol. 2: Separation. New York: Basic Books.
- Bowlby, J. (1980). Attachment and loss, Vol. 3: Loss, sadness and depression. New York
- Bretherton, I., & Munholland, K. A. (2008). Internal working models in attachment relationships: Eleborating a central construct in Attachment Theory. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications*, (2nd ed., pp 103-129). New York, NY: Guilford.
- Bretherton, I., Ridgeway, D., & Cassidy, J. (1990). Assessing internal working models of the attachment relationship. *Attachment in the preschool years: Theory, research, and intervention*, 273-308.
- Bryant, B. K. (1982). An index of empathy for children and adolescents. *Child Development*, 53, 413-425.
- Bureau, J. F., & Moss, E. (2010). Behavioral precursors of attachment representations in middle childhood and links with child social adaptation. *British Journal of Developmental Psychology*, 28, 657-677.
- Cassidy, J. (1988). Child–mother attachment and the self in six-year-olds. *Child Development*, 59, 121–134.
- Cassidy, J. (1994). Emotion regulation: Influences of attachment relationships. In N. A. Fox (Ed.), *The development of emotion regulation and dysregulation: Biological and behavioral aspects. Monographs of the Society for Research in Child Development*, 59, 228–249.
- Cassidy, J., Kirsh, S. J., Scolton, K. L., & Parke, R. D. (1996). Attachment and representations of peer relationships. *Developmental Psychology*, 32, 892–904.

- Cassidy, J., Brett, B. B., Gross, J. T., Stern, J. A., Martin, D., Mohr, J., & Woodhouse, S.
S. Circle of Security – Parenting: A randomized controlled trial. Manuscript under review.
- Crick, N. R. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Child Development*, 67, 2317-2327.
- Davidov, M., & Grusec, J. E. (2006). Untangling the links of parental responsiveness to distress and warmth to child outcomes. *Child Development*, 77, 44-58.
- Dunfield, K. A., & Kuhlmeier, V. A. (2013). Classifying prosocial behavior: Children's responses to instrumental need, emotional distress, and material desire. *Child Development*, 84, 1766-1776.
- Dunn, L. M., & Dunn, D. M. (2007). *PPVT-4: Peabody picture vocabulary test*.
- Dykas, M. J., & Cassidy, J. (2011). Attachment and the processing of social information across the life span: Theory and evidence. *Psychological Bulletin*, 137, 19 – 46.
- Eisenberg, N., & Lennon, R., 1983. Sex difference in empathy and related capacities. *Psychological Bulletin*, 94, 100-131.
- Eisenberg, N., & Miller, P. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin*, 101, 91–119.
- Eisenberg, N., Shea, C. L., Carlo, G., & Knight, G. (1991). Empathy-related responding and cognition: A “chicken and the egg” dilemma. In W. Kurtines & J. Gewirtz (Eds.), *Handbook of moral behavior and development: Vol. 2. Research* (pp. 63-88). Hillsdale, NJ: Erlbaum.

- Emde, R. N., Wolf, D. P., & Oppenheim, D. (Eds.). (2003). *Revealing the inner worlds of young children: The MacArthur story stem battery and parent-child narratives*. Oxford University Press.
- Fabes, R. A., Martin, C. L., & Hanish, L., D. (2003) Young children's play qualities in same-, other-, and mixed-sex peer groups. *Child Development*, 74, 921-932.
- Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science*, 18, 233-239.
- Futh, A., O'Connor, T. G., Matias, C., Green, J., & Scott, S. (2008). Attachment narratives and behavioral and emotional symptoms in an ethnically diverse, at-risk sample. *Journal of the American Academy of Child & Adolescent Psychiatry*, 47, 709-718.
- Garner, P. W., Jones, D. C., & Palmer, D. J. (1994). Social cognitive correlates of preschool children's sibling caregiving behavior. *Developmental Psychology*, 30, 905.
- George, C., & Solomon, J. (2008). The caregiving system: a behavioral systems approach to parenting. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications*, (2nd ed., pp 833-856). New York, NY: Guilford.
- Gifford-Smith, M. E., & Brownell, C. A. (2003). Childhood peer relationships: Social acceptance, friendships, and peer networks. *Journal of School Psychology*, 41, 235-284.
- Graham, S., Taylor, A.Z., & Ho, A. (2009). Race and ethnicity in peer relations research. In K. Rubin, W. Bukowski, & B. Laursen, (Eds.), *Handbook of peer interaction, relationships, and groups* (pp. 394-413). New York: Guilford Press.
- Granot, D., & Mayseless, O. (2012). Representations of mother-child attachment relationships and social-information processing of peer relationships in early adolescence. *The Journal of Early Adolescence*, 32, 537-564.

- Green, J., Stanley, C., Smith, V., & Goldwyn, R. (2000). A new method of evaluating attachment representations in young school-age children: The Manchester Child Attachment Story Task. *Attachment & Human Development, 2*, 48-70.
- Grig Software (2010). CompareIt! (Version 4.2). Retrieved from <http://www.grigsoft.com/index.htm>.
- Gross, J., Brett, B., Cassidy, J., & Beier, J. (2013). *Comforting Coding Task Manual*. Unpublished Manual.
- Grusec, J.E., Hastings, P.D., & Almas, A. Helping and prosocial behavior. In C. Hart & P. Smith (Eds.), *Handbook of Childhood Social Development*, (2nd ed., pp. 549-566). Malden, MA: Wiley-Blackwell.
- Haight, W., & Miller, P. J. (1992). The development of everyday pretend play: A longitudinal study of mothers' participation. *Merrill-Palmer Quarterly, 40*, 331-349.
- Harlow, H. F., Harlow, M. K., Dodsworth, R. O., & Arling, G. L. (1966). Maternal behavior of rhesus monkeys deprived of mothering and peer associations in infancy. *Proceedings of the American Philosophical Society, 58*-66.
- Hastings, P. D., Zahn-Waxler, C., Robinson, J., Usher, B., & Bridges, D. (2000). The development of concern for others in children with behavior problems. *Developmental Psychology, 36*, 531.
- Hastings, P. D., Rubin, K. H., & DeRose, L. (2005). Links among gender, inhibition, and parental socialization in the development of prosocial behavior. *Merrill-Palmer Quarterly, 51*, 467-493.
- Hay, D. (1979). Cooperative interactions and sharing between very young children and their parents. *Developmental Psychology, 6*, 647-658.

- Hayes, A. F., & Krippendorff, K. (2007). Answering the call for a standard reliability measure for coding data. *Communication Methods and Measures, 1*, 77-89.
- Hudson, J. A., Fivush, R., & Kuebli, J. (1992). Scripts and episodes: The development of event memory. *Applied Cognitive Psychology, 6*, 483-505.
- Huttenlocher, J., Haight, W., Bryk, A., Seltzer, M., & Lyons, T. (1991). Early vocabulary growth: Relation to language input and gender. *Developmental Psychology, 27*, 236-248.
- Hyde, J. S., & Linn, M. C. (1988). Gender differences in verbal ability: A meta-analysis. *Psychological Bulletin, 104*, 53-69.
- Killen, M., & Stangor, C. (2001). Children's social reasoning about inclusion and exclusion in gender and race peer group contexts. *Child Development, 72*, 174-186.
- Kistner, J., Metzler, A., Gatlin, D., & Risi, S. (1993). Classroom racial proportions and children's peer relations: Race and gender effects. *Journal of Educational Psychology, 85*, 446-452.
- Krippendorff, K. (2007). Computing Krippendorff's alpha reliability. Departmental Papers (ASC), 43.
- Ladd, G. W., & Hart, C. H. (1992). Creating informal play opportunities: Are parents' and preschoolers' initiations related to children's competence with peers? *Developmental Psychology, 28*, 1179-1187.
- Laible, D. (2006). Maternal emotional expressiveness and attachment security: Links to representations of relationships and social behavior. *Merrill-Palmer Quarterly, 52*, 645-670.
- Laible, D. J., & Thompson, R. A. (2002). Mother-child conflict in the toddler years: Lessons in emotion, morality, and relationships. *Child Development, 73*, 1187-1203.

- Laible, D. (2004). Mother-child discourse in two contexts: Links with child temperament, attachment security, and socioemotional competence. *Developmental Psychology*, 40, 979-992.
- Lieberman, A. F. (1977). Preschoolers' competence with a peer: Relations with attachment and peer experience. *Child Development*, 48, 1277-1287.
- Lindsey, E. W., & Mize, J. (2001). Contextual differences in parent-child play: Implications for children's gender role development. *Sex Roles*, 44, 155-176.
- Lombard, M., Snyder-Duch, J., & Bracken, C. C. (2002). Content analysis in mass communication: Assessment and reporting of intercoder reliability. *Human Communication Research*, 28, 587-604.
- Lyons-Ruth, K., Alpern, L., & Repacholi, B. (1993). Disorganized infant attachment classification and maternal psychosocial problems as predictors of hostile-aggressive behavior in the preschool classroom. *Child Development*, 64, 572-585.
- Lyons-Ruth, K., Jacobvitz, D. (2016) Attachment disorganization: Genetic factors, parenting contexts, and developmental transformation from infancy to adulthood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications*, (3rd ed.). New York, NY: Guilford.
- Macfie, J., Toth, S. L., Rogosch, F. A., Robinson, J., Emde, R. N., & Cicchetti, D. (1999). Effect of maltreatment on preschoolers' narrative representations of responses to relieve distress and of role reversal. *Developmental Psychology*, 35, 460.
- MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annual Review of Psychology*, 58, 593.

- Main, M., Kaplan, K., & Cassidy, J. (1985). Security in infancy, childhood and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research. Monographs of the Society for Research in Child Development*, 50, 66- 104.
- Mark, I. L., IJzendoorn, M. H. V., & Bakermans-Kranenburg, M. J. (2002). Development of empathy in girls during the second year of life: Associations with parenting, attachment, and temperament. *Social Development*, 11, 451-468.
- Martin, D. R., Stern, J. A., & Cassidy, J. (2016). *Caregiving Story Completion Task coding manual*. Unpublished manuscript, University of Maryland, College Park.
- Mendiburu, F. (2014). Agricolae: statistical procedures for agricultural research. *R package version*, 1, 1-6.
- Mitchell-Copeland, J., Denham, S. A., & DeMulder, E. K. (1997). Q-sort assessment of child–teacher attachment relationships and social competence in the preschool. *Early Education and Development*, 8, 27-39.
- Murphy, T. P., & Laible, D. J. (2013). The influence of attachment security on preschool children’s empathic concern. *International Journal of Behavioral Development*, 37, 436-440.
- Page, T., & Bretherton, I. (2001). Mother–and father–child attachment themes in the story completions of pre-schoolers from post-divorce families: Do they predict relationships with peers and teachers? *Attachment & Human Development*, 3, 1-29.
- Pietromonaco, P. R., & Barrett, L. F. (2000). The internal working models concept: What do we really know about the self in relation to others? *Review of General Psychology*, 4, 155.

- Pryce, C. R. (1995). *Determinants of motherhood in human and nonhuman primates: A biosocial model*. Karger
- Raikes, H. A., & Thompson, R. A. (2006). Family emotional climate, attachment security and young children's emotion knowledge in a high risk sample. *British Journal of Developmental Psychology*, 24, 89-104.
- Raikes, H. A., & Thompson, R. A. (2008). Attachment security and parenting quality predict children's problem-solving, attributions, and loneliness with peers. *Attachment & Human Development*, 10, 319-344.
- Rehberg, H. R., & Richman, C. L. (1989). Prosocial behaviour in preschool children: A look at the interaction of race, gender, and family composition. *International Journal of Behavioral Development*, 12, 385-401.
- Revelle, W. (2015). psych: Procedures for Personality and Psychological Research. R package version 1.5.8 <http://personality-project.org/r>, <http://personality-project.org/r/psych-manual.pdf>
- Robbins, C., & Ehri, L. C. (1994). Reading storybooks to kindergartners helps them learn new vocabulary words. *Journal of Educational psychology*, 86, 54-64.
- Rodkin, P. C., Farmer, T. W., Pearl, R., & Van Acker, R. (2000). Heterogeneity of popular boys: antisocial and prosocial configurations. *Developmental Psychology*, 36, 14-24.
- Rose-Krasnor, L., & Denham, S. (2009). Social-emotional competence in early childhood. In K. Rubin, W. Bukowski, & B. Laursen, (Eds.), *Handbook of peer interaction, relationships, and groups* (pp. 162-179).
- Rosseel, Y. (2010). lavaan: An R package for structural equation modeling and more Version 0.3-1. *Word Journal of The International Linguistic Association*, 1, 1-32.

- Rydell, A. M., Bohlin, G., & Thorell, L. B. (2005). Representations of attachment to parents and shyness as predictors of children's relationships with teachers and peer competence in preschool. *Attachment & Human Development*, 7, 187-204.
- Schank, R. C., & Abelson, R. P. (1975). *Scripts, plans, and knowledge* (pp. 151-157). Yale University.
- Senechal, M., LeFevre, J., Hudson, E., & Lawson, P. (1996). Knowledge of storybooks as a predictor of young children's vocabulary. *Journal of Educational Psychology*, 88, 520-536.
- Sroufe, L.A. & Fleeson, J. (1986). Attachment and the construction of relationships. In W.W. Hartup & Z. Rubin (Eds.) *Relationships and development*. Hillsdale, NJ: Lawrence Erlbaum Associates. (pp. 51-71).
- Stern, J. A., Martin, D. R., & Cassidy, J. (2016). *Attachment Story Completion Task coding manual*. Unpublished manuscript, University of Maryland, College Park.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed). Needham Height, MA: Allyn & Bacon.
- Team, R. C. (2016). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. 2016
- Teti, D. M., & Ablard, K. E. (1989). Security of attachment and infant-sibling relationships: A laboratory study. *Child Development*, 60, 1519-1528.
- Van IJzendoorn, M. H., Schuengel, C., & Bakermans-Kranenburg, M. J. (1999). Disorganized attachment in early childhood: Meta-analysis of precursors, concomitants, and sequelae. *Development and Psychopathology*, 11, 225–249

- Verschueren, K., & Marcoen, A. (1999). Representation of self and socioemotional competence in kindergartners: Differential and combined effects of attachment to mother and to father. *Child Development, 70*, 183-201.
- Volling, B. L., Herrera, C., & Poris, M. P. (2004). Situational affect and temperament: Implications for sibling caregiving. *Infant Child Development, 13*, 173–183.
- Waters, H. S., Rodrigues, L. M., & Ridgeway, D. (1998). Cognitive underpinnings of narrative attachment assessment. *Journal of Experimental Child Psychology, 71*, 211-234.
- Waters, E., Wippman, J., & Sroufe, L. A. (1979). Attachment, positive affect, and competence in the peer group: Two studies in construct validation. *Child Development, 50*, 821-829.
- Yarrow, M. R., Waxler, C. Z., Barrett, D., Darby, J., King, R., Pickett, M., & Smith, J. (1976). Dimensions and correlates of prosocial behavior in young children. *Child Development, 47*, 118-125.
- Zahn-Waxler, C., Radke-Yarrow, M., Wagner, E., & Chapman, M. (1992). Development of concern for others. *Developmental Psychology, 28*, 126-136.