

IV. CO-CONSTRUCTION OF ATTACHMENT REPRESENTATIONS AND AFFECT-REGULATING COGNITIONS: THE ROLE OF MATERNAL ATTACHMENT SECURITY

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ABSTRACT This study focused on the role of maternal co-construction skills in building attachment relevant representations in early childhood. Thirty-four mothers and their 4- to 5-year-old children were presented with two co-construction tasks, one an attachment storytelling task, the other an affect discussion task about emotion-laden situations. Maternal co-construction skills were assessed with several scales that scored the quality of the co-construction partnership, the mother’s skill in prompting elaboration, and helping build an explanatory framework. Mothers completed the Attachment Script Assessment (ASA) and the Adult Attachment Interview (AAI) as well. Results indicated that mothers’ secure base script knowledge (ASA) was significantly related to communication effectiveness, encouraging elaboration of storylines, and using open-ended and why questions. Maternal AAI coherence showed similar relations to co-construction support.

One of the goals in modern attachment theory was to work on replacing Freud’s prescientific drive theory with more empirically accessible mechanisms. As part of that endeavor, Bowlby (1969/1982) drew from cognitive psychology the idea that social experience could be represented as a “working model” (Fraiberg, 1943). Such models influence memory, expectations, and

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response availability in subsequent social interactions (Schank, 1982; Schank & Abelson, 1977), a clear conceptual step forward for attachment theory. Still, over the years critics have fairly (and often) commented that the concept of an “internal working model” was somewhat nebulous (Bretherton & Munholland, 1999, 2008; Hinde, 1988). Furthermore, attachment researchers have noted, even with the move to representation and the development of the Adult Attachment Interview (AAI; Main, Kaplan, & Cassidy, 1985), the field has fallen short of fully explaining the mechanisms underlying attachment acquisition, intergenerational transmission, and the stability/instability of individual differences (van IJzendoorn, 1995). With the move to representation, however, a range of verbally based attachment assessments for children as well as adults were introduced and communication between parent and child became an important part of the discussion (Bretherton, 1990; Oppenheim & Waters, 1995).

Bretherton (1987, 1991) not only proposed that open lines of communication were key to the development of attachment representations in children, but that these representations were script-like in form. Waters, Rodrigues and Ridgeway (1998) elaborated upon the nature of attachment scripts in their re-analysis of preschoolers’ story stem completions from the Bretherton, Ridgeway, and Cassidy (1990) study, arguing that the cognitive underpinnings of attachment representations can be thought of as a *secure base script*. They framed the script as a temporal-causal representation of secure base use and support in which the attached individual is faced with a challenge, signals their distress, receives assistance that effectively resolves the challenge and enables the attached individual to reengage their activity or a new activity. Their findings indicated that their script scoring captured much of the variance associated with the traditional story stem scoring and provided clear empirical support for the secure base script construct.

This notion that secure base experience is represented as a script-like cognitive structure has important implications for our understanding of mechanisms underlying attachment development and individual differences, especially during the preschool years. It is unlikely that key representations of early experience arise spontaneously or through some sort of incidental abstractive/elaborative process that becomes available with the onset of speech. Cognitive development research suggests much more limited conceptual abilities throughout early and middle childhood, pointing instead to the importance of social support (scaffolding and co-construction) for emerging representational skills beyond infancy.

The Co-Construction Partnership

Work in the area of social development has already emphasized the importance of narrative co-constructive processes in helping the child build

an understanding of his/her social world (e.g., Oppenheim & Koren-Karie, 2009; Thompson, Laible, & Ontai, 2003). This emphasis on co-construction in the social domain parallels interest in the mother's role in facilitating early autobiographical memory (Fivush, 2011; Fivush, Habermas, Waters, & Zaman, 2011). Mothers who elaborate on the child's personal experience not only build "better" memories, but also facilitate the development of good memory skills. Taking these findings to the social sphere, particularly to children's understanding of emotion and attachment-relevant situations, has been very fruitful (Fivush & Sales, 2006; Hsiao, Koren-Karie, Bailey, & Moran, 2015; Laible & Panfile, 2009; Oppenheim, Koren-Karie, & Sagi-Schwartz, 2007). Mother-child dyads who are in a secure relationship are more likely to talk about (and elaborate upon) social/emotional experiences that facilitate both the understanding and memory of emotional events.

A key conclusion from this work is that mother-child co-construction processes play an important role in both child security and emotional understanding as the child matures. In order to pursue greater understanding of the link between maternal attachment representations and maternal co-construction processes, we decided to frame mother-child co-construction processes within a script framework. Waters et al. (1998) demonstrated that children whose behavior indicated skillful secure base use were better able to fill in the details of attachment-relevant scenarios while following the outlines of a secure base script. Using this finding as a starting point, we argue that mothers who are assessed as secure are more likely to engage in attachment-relevant discussions that help co-construct attachment scripts. More specifically, our hypothesis is that maternal script knowledge should be significantly associated with mothers' co-construction skills in attachment-related narrative tasks. It is unlikely that young children's scripts simply precipitate from experience, but that they are actively and jointly co-constructed.

The Current Study

Mother-child pairs engaged in two co-construction tasks developed for this monograph, one a joint storytelling task about attachment-relevant scenarios, the other a joint discussion of emotion-laden situations (see Chapter II for detailed descriptions). Maternal secure base script knowledge was assessed by the Attachment Script Assessment (ASA; Waters & Waters, 2006). Mother's attachment security was also assessed by the AAI (coherence scores). An IQ test was included to evaluate general intellectual functioning and its relationship to maternal co-construction skills.

All mother-child interactions were transcribed from videotaped sessions and the protocols were rated on how well the mother provided co-construction support, in particular how well they prompted content

elaboration and an explanatory framework, activities that should facilitate the development of attachment scripts. The developmental script literature has reported that ordinary scripts (e.g., birthday party, lunch at day care) become more elaborate over time and with experience (Fivush & Slackman, 1986; Nelson & Gruendel, 1986). Thus, we expected that maternal encouragement of content elaboration and explanation vis-à-vis attachment scripts would be fundamental to the co-construction skills of mothers assessed as secure and would be picked up by our co-construction scales. Based on these expectations, we predicted that mothers with high script scores (ASA) would receive higher co-construction scores on both of our tasks. In light of work demonstrating that secure AAI narratives include significant secure base script knowledge, we also anticipated similar relations with AAI coherence scores (Waters, Ruiz, & Roisman, 2017).

METHOD

Participants and Design

Thirty-four mother–child pairs were recruited from the Stony Brook Relationship Project (Crowell, Treboux, & Waters, 2002) for participation in the current co-construction study. Ninety-three percent of the women were white, middle-class Americans, the remaining 7% were Asian and Hispanic Americans. Children in the study ranged in age from 4 to 5 years, with a mean age of 4 years 5 months and a standard deviation of 4 months. Mothers' ages ranged from 27 to 36 years, with a mean of 31 years and 7 months and a standard deviation of 2 years. At the time of the study, 41% of mothers were employed full time, 21% part-time, and 25% were not employed outside the home. The remaining 13% reported that they were students. Fourteen percent of mothers had completed only a high school education, while 28% had completed more than high school, but without a higher-level degree. Thirty-four percent had a Bachelor's degree and 24% had postbaccalaureate education. Mothers had been married from 5 to 8 years, and had an average of 1.5 children.

All of the participants had been assessed for attachment security multiple times from 3 months before marriage to 4 to 6 years into the marriage, using the AAI, as part of the broader Stony Brook Relationship Project. For our purposes, we relied on the AAI results from a later administration 4–6 years into marriage, using overall coherence of transcript ratings of the interview as the measure of attachment security. Waters, Treboux, Fyffe, and Crowell (2001) have reported statistical analyses that found coherence to be the best predictor of a continuous security score. Detailed rater reliability of AAI scoring from this project for the later AAI assessments are reported in Crowell

et al. (2002) and Treboux, Crowell, and Waters (2004). Agreement of coherence scores for the AAI assessment was $r(25) = 0.70, p < .01$.

In addition, as part of the Stony Brook project, each participant's IQ was measured using the Henmon–Nelson Test of Mental Ability, which assesses general intellectual abilities, including vocabulary, analogies, and number sequence. The measure has been found to correlate well with other tests of intelligence and achievement (Buros, 1965; Thorndike, Cunningham, Thorndike, & Hagen, 1991).

For the current study, each mother was evaluated for secure base script knowledge via the ASA (Waters & Rodrigues-Doolabh, 2001; Waters & Waters, 2006) approximately 1 year after the AAI assessment. In addition, each mother–child pair was asked to complete our two co-construction tasks, the Joint Storytelling Task and the Affect Discussion Task. Material sets were assigned so that there was no overlap in storylines across tasks. Due to camera problems, one mother–child pair only provided data from the storytelling task, and two pairs only provided data for the affect discussion task, leaving 32 pairs for the storytelling task, 33 for the vignette discussion task, and 31 pairs completing both. Detailed information about materials and procedure are presented in Chapter II. Appendix B presents a complete mother–child protocol from one of the stories (“Mom goes on a trip to the city”) from the Joint Storytelling Task, while Appendix C presents sample vignette storylines along with mother–child discussions from the Affect Discussion Task.

RESULTS

The first section presents descriptive statistics and reliability information about the ASA and the different co-construction scales. Script scoring for the ASA and details of the co-construction scales for each task are described in Chapter II. The second section presents relations between co-construction scales, the AAI and the ASA, and the IQ measure for the Joint Storytelling Task. The third section provides similar information for the Affect Discussion Task. In the last section, information about the relation between the two co-construction tasks is presented.

Reliability and Descriptive Statistics of Study Measures

Attachment Script Assessment (ASA)

Rater agreement on the 7-point script scale between two independent scorers was consistently high (within 2 points on 94–97% of the passages). Disagreements greater than 2 points were discussed and independently re-scored. Scores from the independent raters were then averaged to provide a more reliable composite score for each passage (ICCs ranged from 0.90 to

0.95). Correlations among the script scores from the different attachment narratives ranged from 0.60 to 0.85, Cronbach's $\alpha = 0.90$ for the composite script score (average of all four story scores). The mean composite script score for the ASA was 4.33, $SD = 1.49$.

Co-Construction Scales—Storytelling Task

Each transcribed story protocol, two from each mother-child pair, were scored on three co-construction scales by two raters (creating a co-construction atmosphere, encouraging content elaboration, supporting an explanatory framework). The scores from the 7-point co-construction scales were averaged if they were within two points. Greater point differences were discussed and the story protocol was then independently rescored. Rater agreement within two points was 91% for scale 1, 86% for scale 2, and 88% for scale 3 (ICCs ranged from 0.57 to 0.71). Correlations between the three scales were all significant, $r = 0.87$, $p < .01$ for scales 1 and 2, $r = 0.60$, $p < .01$ for scales 2 and 3, and $r = 0.52$, $p < .01$ for scales 1 and 3. Correlations across the two stories that each mother-child pair constructed were high for each scale as well, ranging from $r = 0.77$ to 0.84, indicating that mothers were quite consistent in their approach across stories. Cronbach's $\alpha = 0.86$ for the composite co-construction score (across the three co-construction scales). Mean scale scores for the co-construction scales in the story-telling task were 3.86, $SD = 1.40$, 3.72, $SD = 1.35$, and 4.00, $SD = 1.16$, for scales 1-3, respectively. There were no differences in mean co-construction scale scores across the two story sets used in the task.

Co-Construction Scales—Affect Discussion Task

Each of the six transcribed vignette discussions for each mother-child pair was scored on the three co-construction scales by two independent raters (supporting recognition of affective response, encouraging elaboration of affective script, supports explanatory framework). To avoid undo influence, all the vignettes were scored on each of the scales separately. Scores on the 7-point co-construction scales were averaged if they were within two points. Greater point differences were discussed by the scorers and then rescored. Rater agreement within two points was consistently high across the vignettes, 84% for Scale 1, 89% for Scale 2, and 86% for Scale 3 (ICCs ranged from 0.60 to 0.80). Correlations between the three scales were all significant at $p < .001$, with scales 1 and 2 correlating at 0.73, scales 2 and 3 correlating at 0.75, and scales 1 and 3 correlating at 0.69. Cronbach's $\alpha = 0.90$ for the composite co-construction score (across the three co-construction scales). Means and standard deviations for the co-construction scales across all the vignettes were 4.24, $SD = 1.06$, 4.09, $SD = 1.03$, and 3.93, $SD = .65$ for scales 1-3, respectively. There were no differences in mean co-construction scale scores across the two vignette sets used in the task.

Relations Among Attachment Measures, IQ, and Co-Construction—Joint Storytelling Task

Table 1 presents the correlations between ASA script scores, AAI coherence scores, mother’s IQ scores, and the co-construction scales, using more conservative two-tailed tests due to the small sample size. Correlations between the composite co-construction scores and the ASA and AAI were significant and represent the key tests of our hypothesis that maternal attachment representations predict co-construction skills. More detailed information about individual scales is presented in Table 1 for reader interest and as part of introducing the co-construction scoring system. In examining the individual results from the three co-construction scales, there are significant correlations between all three scales and the ASA script scores. The AAI coherence scores are correlated with two of the scales, “creating a co-construction atmosphere” and “encouraging elaboration,” but not with the final scale, “supporting an explanatory framework.” Mothers’ IQ scores were not significantly related to the three co-construction scales or the composite scale score, but the correlations were not zero. Maternal script scores and AAI coherence scores were also unrelated to mother IQ scores, with correlations here closer to zero, $r = 0.13$, *ns*, and $r = 0.10$, *ns*, respectively. Controlling for IQ scores in examining the relations between the composite co-construction scores and the two maternal attachment measures showed continued significant results, indicating that general intellectual functioning does not impact on this relation. We should note, however, that the current sample is middle class and different findings might apply to more diverse samples.

Relations Among Attachment Measures, IQ, and Co-Construction—Affect Discussion Task

Table 2 presents the correlations between each of the three co-construction scales, the composite co-construction score, and ASA script

TABLE 1
CORRELATIONS AMONG CO-CONSTRUCTION SCALES, ATTACHMENT MEASURES, AND IQ IN THE JOINT STORYTELLING TASK

	Scriptedness	AAI Coherence	IQ
Co-construction scales			
Co-construction atmosphere	0.43*	0.42*	0.22
Encouraging elaboration	0.42*	0.39*	0.34
Explanatory framework	0.50**	0.28	0.23
Composite scores ^a	0.50** (0.49**)	0.41* (0.40*)	0.29

^aPartial correlations with IQ controlled are in parentheses.
** $p < .01$, * $p < .05$.

TABLE 2
CORRELATIONS AMONG CO-CONSTRUCTION SCALES, ATTACHMENT MEASURES, AND IQ IN THE AFFECT
DISCUSSION TASK

	Scriptedness	AAI Coherence	IQ
Mother-involved vignettes			
Recognizing affective content	0.55**	0.39*	-.04
Encouraging elaboration	0.45*	0.39*	-.19
Explanatory framework	0.44*	0.20	.01
Composite scores ^a	0.53**	0.37*	-.09
Nonmother vignettes			
Recognizing affective content	0.60**	0.42*	-.01
Encouraging elaboration	0.47*	0.34*	-.13
Explanatory framework	0.41*	0.23	.17
Composite scores ^a	0.57**	0.38*	-.02

^aPartial correlations with IQ controlled were the same.

** $p < .01$, * $p < .05$.

scores, AAI coherence, and IQ, for mother-involved vignettes and mother noninvolved vignettes (three each, total set of six vignettes). Correlations between the composite co-construction scores and the ASA and the AAI were significant for both mother-involved and nonmother vignettes supporting the hypothesis that maternal attachment representations predict co-construction skills. Once again, more detailed information is included in Table 2 on the individual co-construction scales in order to provide scoring system details for reader interest. All three co-construction scales were significantly related to the ASA script scores. The AAI coherence scores were correlated with two of the scales, supporting recognition of affective response and encouraging elaboration, but not with the supporting explanatory framework scale. Mothers' IQ scores were unrelated to any of the scales, indicating that maternal differences in promoting affect regulating cognitions do not reflect differences in general intellectual functioning. Finally, as Table 2 shows, the pattern of results for both mother-involved vignettes and mother noninvolved vignettes was similar across all measures. This suggests that mothers' co-construction skills are fairly broad based, with mothers with high script scores (and/or high coherence scores on AAI) being more effective in discussing a wide range of affect-laden situations with their child, not just those that involve mother-child relationships.

We also examined mother co-construction skills with vignettes that contain positive and negative emotion content, anticipating similar broad-based patterns of correlations across vignettes when they are broken down by emotion content. Scale scores were collapsed across mother-involved and mother noninvolved vignettes, leaving four negative emotion-laden vignettes

versus two positive emotion-laden vignettes. Table 3 presents the correlations between the three co-construction scales, the composite scale scores, ASA script scores, and AAI coherence scores for both negative and positive vignettes as well as summary results with all six vignettes. Patterns across positive and negative vignettes were similar, with the summary results reinforcing findings with the storytelling co-construction task, that is, maternal ASA script scores and AAI coherence scores are significantly related to co-construction skills.

Relations Between the Two Co-Construction Tasks

For the 31 mother–child pairs who participated in both the joint storytelling and affect discussion tasks, correlations between comparable co-construction scales were calculated. Both sets of scales address similar dimensions of the mother–child interaction, from setting the general context of the task (scales 1) to encouraging content elaboration via the use of open-ended questions (scales 2) and prompting an explanatory framework that helps the child form a detailed and coherent representation of the attachment/affect-laden situation (scales 3). Creating a co-construction atmosphere (storytelling Scale 1) was correlated with supporting recognition of affective response (affect discussion Scale 1), $r=0.37$, $p<.05$, whereas correlations between Scale 2 (encouraging elaboration) and Scale 3 scores (supports explanatory framework) across tasks were significant at the $p<.01$ level, $r=0.46$ and $r=0.52$, respectively. The correlation between the composite co-construction scale scores for the two tasks was 0.57 , $p<.01$ indicating that mothers who are more effective in helping their children co-construct stories about attachment-relevant situations are also more

TABLE 3
CORRELATIONS AMONG CO-CONSTRUCTION SCALES AND ATTACHMENT MEASURES ACROSS NEGATIVE AND POSITIVE AFFECT-LADEN VIGNETTES

	Negative Affect Vignettes		Positive Affect Vignettes		All Vignettes	
	Scriptedness	AAI Coherence	Scriptedness	AAI Coherence	Scriptedness	AAI Coherence
Recognizing affective content	0.61**	0.45**	0.49**	.30	0.60**	0.42*
Encouraging elaboration	0.51**	0.43*	0.36	.21	0.48**	0.38*
Explanatory framework	0.50**	0.26	0.23	.01	0.48**	0.22
Composite scores ^a	0.61**	0.44**	0.41*	.21	0.57**	0.39*

^aPartial correlations with IQ controlled were the same.
** $p<.01$, * $p<.05$.

effective at helping their children make sense of their emotional experiences through affect-regulating cognitions. Constructing an overall co-construction score across both tasks, reducing co-construction skills into a single number, produced significant relations between both ASA script scores, $r=0.58$, $p < .01$, and AAI coherence scores, $r=0.46$, $p < .01$.

DISCUSSION

The current findings demonstrate that mothers who have greater secure base script knowledge are better able to guide their children during the co-construction of attachment-related stories, that they are more likely to prompt content elaboration, and provide explanatory frameworks that arguably enhance script-like representations of the storylines. Parallel results are found with discussions of emotion-laden vignettes in that high script mothers are more accepting of the child's affective responses, encourage their children to both elaborate their comments, and prompt causal explanations, thereby helping them make sense of the situation and their feelings. AAI coherence scores correlate well with ASA scores ($r=0.47$, $p < .01$) and show similar patterns of results across the co-construction tasks. Nonetheless, it should be noted that the descriptions of the co-construction scales are based on cognitive processes implicated in script development, and were designed to match the secure base script construct reflected in the ASA. Work on script representations suggests that the overlap between the ASA and the AAI along with associated, similar correlates, is due to secure base script content embedded in AAI protocols (Steele et al., 2014; Waters, Brockmeyer, & Crowell, 2013; Waters et al., 2017).

Overall we can describe two differing styles of co-construction in this work. Mothers with "effective co-construction skills" systematically facilitate co-construction by allowing their children to direct attachment-relevant storytelling, prompting them to fill in the details of the story events, preferring open-ended questions that require more detailed responses, and helping their children to respond more effectively to the emotional cues in the story. Their attention to emotional cues is supported by findings from the Affect Discussion Task that directs joint construction of emotion-laden scenarios. Across both tasks, mothers with effective co-construction skills are more focused on helping their child understand the relevant social situations by building causal relations between the sequence of events and providing an explanatory framework.

In contrast, mothers with weak co-construction skills tend to be involved with the mechanics of storytelling per se, and not as attentive to the child. They do not give the child much opportunity to add their own unique twists to the storyline. Instead they are often looking for an expected response to their prompts. Thus, they do not push for understanding or help the child relate

the story to their own experience. In more extreme cases the mother focuses on correcting errors in the story (by the child), overriding the co-construction instructions. In such circumstances, a mother may take a quizzing tone, repeating questions until the “right” answer is obtained. In the end, mothers with weak co-construction skills miss valuable opportunities to discuss characters’ feelings, building causal links between events of the story, and ultimately providing the environment necessary for building attachment scripts and coherent attachment representations.

Studies on autobiographical memory add an interesting component to the picture. Mothers who use open-ended questions, and thus help elaborate representations of past experiences, promote better memory of everyday experiences in their children (Boland, Haden, & Ornstein, 2003; Fivush et al., 2011; Fivush, Haden & Reese, 2006; Reese & Fivush, 1993). Scripts are built upon memories of similar events, but obviously they presuppose those memories. Our mothers with more effective co-construction skills seem to adopt a manner of interaction that takes advantage of the more effective elaborative communication style described in the autobiographical memory literature along with a secure mother’s appreciation of the importance of jointly building an understanding of emotion-laden situations.

As encouraging as our findings are with respect to the importance of co-construction processes during the preschool years, it should be noted that the current sample was a middle-class sample of mothers, and that patterns of co-construction may vary in more disadvantaged samples and cross-culturally. It is promising, however, that cross-cultural studies that have been conducted with the ASA report similar findings concerning the links between maternal scripts and child security as those reported in middle-class U.S. samples (Vaughn et al., 2007; Veríssimo & Salvaterra, 2006). The question of similar co-construction patterns within a more at-risk sample will be a challenge for future researchers. Zakir, Huth-Bocks, and Waters (2015) have reported ASA results predicting child security in an at-risk sample at ages 1 and 2, an important step toward demonstrating the viability of the ASA in more diverse samples. Replication of our co-construction findings in larger as well as more diverse samples will also be important, although Chapters V and VI provide additional co-construction results. Future research will hopefully further expand our understanding of maternal secure base script knowledge, co-construction processes, and child security in a variety of samples, both larger and more diverse.

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