

**MOTHER-CHILD INTERACTIONS, ATTACHMENT, AND
EMERGENT LITERACY: A CROSS-SECTIONAL STUDY**

by

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Mother-Child Interactions, Attachment, and Emergent Literacy: A Cross-sectional Study

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BUS, ADRIANA G., and VAN IJZENDOORN, MARINUS H. *Mother-Child Interactions, Attachment, and Emergent Literacy: A Cross-sectional Study*. CHILD DEVELOPMENT, 1988, 59, 1262–1272. The purpose of this study was to describe the relations among mother-child interactions as they relate to written language, attachment security, and the child's performance on a number of emergent-literacy measures. 16 1½-year-olds, 15 3½-year-olds, and 14 5½-year-olds participated in the study. Each mother-child dyad read through 2 books (*Dribble* and *Letterbook*) and watched "Sesame Street" fragments about letters and words. The Strange Situation procedure was used to observe attachment security with the youngest group. In the older groups, the children were left on their own by the mother for about 1 hour, during which they were tested and it was observed how the children reacted upon the return of the mother. In addition, each 3½- and 5½-year-old completed 5 emergent-literacy tests. The results suggest that mothers of small children give reading instruction. Furthermore, it is shown that in securely attached dyads, there is less need to discipline; the children are less distracted than in anxiously attached dyads. In addition, securely attached dyads tend to pay more attention to reading instruction and to engage in more proto-reading. Last, children who get more reading instruction and less narration score higher on emergent-literacy measures.

Because children appear to get some insight into the characteristics of written language at a very early age (Teale & Sulzby, 1986), development and determinants of "emergent literacy" have recently been studied more intensively. Heath (1982), Ninio and Bruner (1978), Pellegrini, Brody, and Sigel (1985), and Wells (1985), among others, have made clear that foundations for the development of reading abilities in school are already present during early childhood. The role of the primary caregiver, usually the mother, in mediating between written language and the developing child is considered essential (Sulzby, 1986). The origins of emergent literacy are thought to be found in early mother-child interactions during activities related to written words on television ("Sesame Street," commercials), in picture books, and in reading books. These early mother-child interactions have been supposed to consist of

a "scaffolding dialogue" (Bruner, 1985; DeLoache & DeMendoza, 1987; Ninio & Bruner, 1978). From a cultural-historical perspective, it is hypothesized that mothers try to create a "zone of proximal development" for the child (Pellegrini et al., 1985). What children are not yet able to do themselves is done with the assistance of the mother. Reading is first practiced on an interpersonal level, and afterward intrapersonally integrated (Van IJzendoorn & Van der Veer, 1984).

Teale (1981) remarks that studies of the development of reading abilities among preschoolers have been carried out with rather small and selected samples and among subjects within a very restricted age range. Recent studies imply that parent-child interactions during reading-related activities vary over development (DeLoache & DeMendoza, 1987; Heath, 1983; Teale, 1986). For instance,

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the typical pattern of book-reading episodes involving 3-year-olds differs from the pattern of a mother and her 1-year-old (Heath, 1983; Ninio, 1980; Teale & Sulzby, 1986). In this study, we describe mother-child interactions in situations in which 1½-, 3½-, and 5½-year-olds are exposed to written material on television or in books. From a cultural-historical perspective, it is supposed that older dyads pay more attention to reading aspects, whereas younger dyads emphasize narration, that is, interpretation of the content as represented by pictures and stories.

Few studies have been carried out to uncover the affective dimension of mother-child interactions as they relate to written material (Holdaway, 1979). From the data that do exist, it may be derived that the affective atmosphere during storybook reading has some influence on reading instruction. It is also plausible to take the affective relationship between mother and child into account in describing instructional interactions (Leichter, 1984). From attachment theory (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969), we derive the hypothesis that securely attached children will be more harmoniously instructed by their mothers, that is, they will show less disruptive and problematic behavior as compared to anxiously attached children (Bretherton, 1985). We also expect that mothers of securely attached children will place higher demands on their children than mothers of anxiously attached children and therefore will be more likely to emphasize reading instruction. The latter children are presumed to have developed less trust in their environment and in themselves and to be less resilient, that is, less able to cope with difficulties than securely attached children (Sroufe, 1983; Van IJzendoorn, Van der Veer, & Van Vliet-Visser, 1987). We propose that anxiously attached children will therefore be less able to cope with problems related to the acquisition of reading.

Within attachment theory there is much discussion of whether and at what age a certain type of attachment relationship becomes stabilized, that is, remains the same. Main, Kaplan, and Cassidy (1985) argue for an early age based on their having found a very high and significant correlation (.76) between security of attachment to mother at 1 year and at 6 years of age. According to Lamb, Thompson, Gardner, and Charnov (1985), the bulk of the evidence indicates that patterns of attachment behavior reflect the current but not necessarily enduring status of the mother-infant relationship. In searching for relations between

security of attachment and other aspects of mother-child interaction, it would therefore be better to take into account concurrent attachment and not rely exclusively on attachment measurements in the first 2 years of life. In the present study we look for concurrent relations between attachment security and mother-child interactions during activities related to written language.

Finally, we hypothesize that mother-child interactions through written language are related to the child's reading ability, or rather its precursors. Durkin (1966), Teale (1986), and Wells (1985) have tried to relate children's written language experiences at preschool age with reading ability during primary school. In these studies, however, more attention is paid to how often reading-related activities take place than to the content of these interactions (Teale, 1984; Thomas, 1984). In contrast, our goal is to determine whether emergent literacy is connected to the content of mother-child interaction during activities such as joint storybook reading. It is hypothesized that the children of mothers who pay more attention to reading instruction during reading-related activities are more advanced in emergent literacy. On the one hand, children who are more advanced in emergent literacy will be more curious about formal aspects of written material and elicit more reading instruction. On the other hand, more maternal attention to reading in daily interactions concerning written material will stimulate emergent literacy. We expect to find a relation between the extent to which attention is paid to reading instruction and emergent literacy as measured through independent tests. In applying tests that measure functional as well as linguistic aspects of written material (Bus, 1986; Goodman, 1984), we had no reason to expect specific effects, as different aspects of emergent literacy are usually strongly correlated (Hiebert, 1981).

Method

In this study, a cross-sectional design was applied. Three groups of children (mean age 1½, 3½, and 5½ years) were observed interacting with their mothers during a videotaped fragment of "Sesame Street," while reading a picture book (*Where Is Dribble?*), and while looking through a booklet containing letters and corresponding words and pictures (letter book). Children from the older groups completed emergent-literacy tests. In addition, all children were separated from their mothers and their behavior during reunion was observed. With the youngest

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group, the Strange Situation procedure (Ainsworth & Wittig, 1969) was used, whereas with the older groups the children were left alone once by their mothers for about 1 hour in the laboratory (Main et al., 1985).

Subjects

Forty-five mother-child dyads participated; 16 dyads with 1½-year-old children, 15 dyads with 3½-year-olds, and 14 dyads with 5½-year-olds. The variation of age within age groups is very small (± 3 weeks). We therefore consider the age groups as homogeneous in this respect. The three groups did not differ significantly in the distribution of the sexes, $\chi^2(2, N = 45) = 1.68$, N.S., although each group contained more girls (10, 11, and 7, respectively) than boys (6, 4, and 7, respectively). Due to technical problems, part of the videotapes of two mother-child pairs could not be coded. Therefore, data on security for one pair and data on mother-child interaction during reading-related activities for another pair were missing. Mean socioeconomic status of the participating families was 4.7 on a scale ranging from 1 (unskilled labor) to 6 (academic professions). The scale was derived from Van Westerlaak, Kropman, and Collaris (1975). The three age groups did not differ significantly in socioeconomic status, $F(2,37) = 2.88$, N.S.

Procedures

To observe mother-child interactions related to written language, three situations were created that presumed to influence emergent literacy (Cook & Conner, 1976; Hiebert, 1980; Mason, 1980; Wells, 1985) and that, according to ethnographic research, are rather common in the natural setting (Anderson & Stokes, 1984): watching the television program "Sesame Street," reading a picture book (*Where Is Dribble?* [Hill, 1980]), and going through a booklet with letters, illustrated with corresponding words and pictures (*B Is a Bear* [Bruna, 1985]). (These three situations will hereafter be referred to as Sesame Street, Dribble, and Letter Book.)

The observation sessions took place in a laboratory playroom. The mothers were told that the focus of the observations was on mother-child interaction in common situations. Mothers were asked to watch Sesame Street and to go through the booklets as if they and their child were at home together (DeLoache & DeMendoza, 1987). No requirements regarding the nature and intensity of interactions were put forward. To divert the mothers' attention from the goals of the study, we started with the two tasks in which written language was less prominent: Sesame Street

and Dribble, respectively. By their design, both tasks strongly emphasize the content of the story and illustrations, whereas in Letter Book, written language predominates. Furthermore, we not only used reading-related tasks but also a problem-solving task—the Butter Dish—in which written language did not play any role. This task had to be solved first. Time spent on Sesame Street was 210 sec, whereas time on Dribble ranged from 74 to 434 sec ($M = 200$; $SD = 123.7$), and on Letter Book from 35 to 596 sec ($M = 247$ sec; $SD = 123.7$). All interactions were videotaped and coded afterward.

Sesame Street.—The Sesame Street collage contained three videotaped TV fragments in which letters and words were central. In the first fragment, Kermit the frog explains the letter W as in Water and Washing. During the explanation, the letter W changes into N (as in Nature); the letter N changes into V (as in Vast); and the letter V, finally, changes into I (as in Inn). The second fragment consists of a pantomime with music, in which the letter R is central. In the last fragment, Grover and Oscar play with the alphabet. Grover mentions a letter with a corresponding positive word (L as in Love), whereas Oscar takes the next letter and suggests a corresponding negative word (M as in Mad).

Dribble.—In this booklet, the object is to look for Dribble, who is hiding somewhere in the house. On each page, a question is posed ("Is Dribble behind the door?" "Is Dribble under the bed?" etc.). Each question is illustrated with objects from a house, such as a door or staircase, behind which Dribble could be hiding. These objects can actually be opened to see whether Dribble is hiding there. Behind the illustrations, the answer to the question (No) can be found. The booklet contains nine illustrations, which are all looked at by mother and child.

Letter Book.—The little Letter Book contains the alphabet with corresponding illustrations. On a right-hand page, for example, a large printed b can be found, with a picture of a bear on the opposite page. Letters that are rare in Dutch, such as c, q, v, and x, have been deleted from the booklet. The following variables were coded in the three situations:

1. Narration: This category included all maternal explanations, questions, and comments about the meaning of objects, stories, and illustrations; narration also included interpretations of content through other means, such as naming and pointing out.

2. Story exploration: This category included children's explanations, questions, and comments about the meaning of objects, stories, and illustrations, as well as interpretations of content through other means, such as naming and pointing out.

3. Reading instruction: This category included all maternal explanations, questions, and comments relating to the formal aspects of written language, such as the connections between letters and sounds, word identification, the naming of letters, and spelling of words.

4. Proto-reading: Included here were children's attempts to spell words, to name letters, to point out the symbolic function of written language; for example: "That is my letter!" (i.e., the first letter of the child's first name).

5. Disciplining: Included here were all maternal verbal and nonverbal behaviors to reduce the child's distracted behavior, to get his or her attention to the task, or to restore his or her concentration on the written language or the content and illustrations of the tasks.

6. Distraction: Included in this category was all problematic, not task-related behavior of the child; conflicts between mother and child that are not task-related, as well as getting out of step with each other, are all considered distracted behavior.

Frequency of the behaviors during the whole session was scored and divided by the time spent on the specific session or task. Interobserver reliability was computed on the basis of five protocols, and ranged from .85 to 1.00, with a mean of .92.

Attachment.—The well-known Strange Situation procedure was used to measure attachment security in the youngest age group. This procedure, consisting of eight episodes, including two separation and two reunion episodes, was applied according to the prescriptions of Ainsworth and her colleagues (1978). Elsewhere, we have presented evidence for the cross-cultural validity of the Strange Situation procedure (Van IJzendoorn & Kroonenberg, 1988).

The intercoder reliability for classifying the dyads into one of the three main attachment categories—A (anxiously avoidant attachment), B (secure attachment), or C (anxiously resistant attachment) (see Ainsworth et al., 1978, for details)—was 100% ($n = 15$). The reliability for classification into one of the subcategories—A1, A2, B1, B2, B3, B4, C1, C2—was 93% ($n = 15$). Following Main et al.

(1985), subcategories were recoded on a three-point rating scale for security, that is, the degree to which the child feels its caregiver is a safe base from which to explore the environment. The subcategories A1, A2, C1, and C2 were recoded into a score of 1, B1, B2, and B4 into a score of 2, and B3 into a score of 3.

With the two older groups, the Strange Situation cannot be applied with any validity. Following Main et al. (1985, pp. 80 ff.), the children were separated once for about 1 hour from their mothers, and their reunion was videorecorded. During the separation episode, the experimenter carried out some tests with the child, and then left him or her alone for about 3 min, after which the mother returned. The separation episode appeared to be somewhat more stressful than Main et al.'s (1985) procedure because, in contrast to the latter procedure, the child was left alone for 3 min by the experimenter, and the other parent was not present at the child's reunion with the parent. In the first minute of reunion, we observed whether and how often the child *smiled* at the mother, *showed* toys, *accepted* initiatives for interaction, *looked* at the mother, *evaluated* what happened in the meantime, and *offered to play* together. In addition, a rating scale for security was scored, consisting of three scale points analogous to the security scale mentioned above: (1) the child appears very anxious after separation, avoids the mother, or resists her in an ambivalent way; (2) the child is somewhat distressed and somewhat out of step with the mother, or seemingly somewhat indifferent, but he or she readily accepts offers to play and explore the environment together; (3) the child greets his or her mother very positively, does not avoid or resist her, and is eager to share experiences. The intercoder reliability for the variables measuring behavior upon reunion ranged from .61 to 1.00 ($M = .96$). The correlation between the summed scores on the individual variables smiling, showing, accepting, looking, evaluating, and playing together, on the one hand, and the scores on the security rating scale on the other hand, was .75 ($n = 20$; $p < .001$). Security did not correlate with age, $r(44) = .12$, N.S.: age groups did not differ significantly on the security scale.

Reading tests.—To measure the emergent literacy of the 3½- and the 5½-year-olds, the children individually completed five tests. The 1½-year-olds were not tested because they would not have understood the test instructions. The tests measure functional

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as well as linguistic aspects of written language, and they correlate highly (mean correlation is .64; range is .50–.79).

1. Reading: To determine the children's emergent reading behaviors, they were asked to read a story to the investigator and were encouraged to simulate if they did not know how to read. The stimulus consisted of one of the child's favorite books, which the mothers were asked to bring along. During reading the children and examiner were videorecorded. We coded children's performance into five ordinal levels, according to suggestions made by Sulzby (1985): (1) refusals (low level); (2) attempts governed by pictures, stories not formed; (3) attempts governed by pictures, stories formed (oral-language-like); (4) attempts governed by pictures, stories formed (written-language-like); (5) attempts governed by print. Two coders reached 92% agreement. Disagreements were reconciled after discussion.

2. Constructing words: Children were asked to make eight three-letter words, each time with a choice of 10 letters. The words represented concrete objects, for example, a car. Following Ferreiro and Teberosky's (1982) definition of successive writing levels, answers were scored as (1) *figurative* (building with letters, sometimes reflecting the represented object's characteristics); (2) *word-like* (the configuration appears to be a word, but without a relation between letters and sounds); (3) *partially correct* (mostly correct first and last consonants); and (4) *correct*. The most frequently occurring response type on the eight words was scored. Two coders reached 75% agreement. Disagreements were reconciled after discussion.

3. Letter-name knowledge: Children were asked to name 12 letters. The stimuli consisted of plastic lower-case letters. The cluster of letters differed per child, as each child was confronted with six letters from his or her own name, three from the first and three from the last name. We chose the other six letters from a list of letters which, according to a pilot study, are known most frequently by preschoolers. Either mentioning the alphabetic name or the sound name was awarded 1 point, with a maximum score of 12. Two coders agreed perfectly on the scores of all subjects.

4. Function: To determine whether the child understood the function of reading, the examiner read nine short stories about situations in which print served some particular function, posing a question about the use of

print in that situation (Hiebert, 1981). For example, "Ellen goes by bus to the zoo together with her mother. They go to the Central Park where the buses are, just like these [the experimenter shows the child a toy bus]. How does Ellen's mother know which bus goes to the zoo? How can she see it?" Each correct answer was awarded 1 point, with a maximum score of 9. Alpha reliability computed on the basis of the nine stories was satisfactory: .80.

5. Conventions: By means of six questions, it was determined how much knowledge the children possess about reading conventions, such as reading from left to right, and from top to bottom (see also Hiebert & Adams, 1987). The child was shown a series of books differing in amount of print (book 1: blank pages; book 2: just pictures; book 3: pictures and text; book 4: just text). The child was asked whether a given book could be read by someone who was able to read. Concerning book 4 with just text, we also asked where a reader had to start reading a sentence (left or right), and how a reader had to continue when he or she was at the end of a sentence. Each correct answer was awarded 1 point, with a maximum score of 6. Alpha reliability was satisfactory: .75.

Data Analysis

By means of multivariate analysis of variance, we examined whether the three tasks—Sesame Street, Dribble, and Letter Book—differed, and, through univariate analyses of variance, which variables contributed most to the differences. Multivariate analyses of variance for each of the three situations were then carried out to uncover differences between age groups, and through Newman-Keuls tests we examined which groups differed most strongly. Because of the restricted size of the sample, we were not able to carry out analyses with more factors. By means of Pearson correlations, we checked how attachment security and mother-child interactions during the three tasks were interconnected. Last, we examined, by means of Pearson correlations, whether interaction characteristics were related to emergent-literacy measures.

Results

Task and age differences.—A MANOVA with task as factor and maternal behaviors as variables showed that the three tasks differed strongly: Wilks's lambda = .07, $F(6,36) = 79.30$, $p < .001$. Mothers were much more passive during Sesame Street than during Dribble or Letter Book. Reading instruction was much more apparent during Letter Book than during the other tasks. During Dribble

and Letter Book, mothers emphasized narration more than during Sesame Street. A MANOVA with task as factor and children's behaviors as variables resulted in a Wilks's lambda of .11, $F(6,36) = 50.83$, $p < .001$. The children, too, behaved much more passively during Sesame Street. During Letter Book, children made the most effort to read, whereas during Dribble and Letter Book, children explored stories and illustrations more than during Sesame Street.

Presented in Table 1 are the results of MANOVAs, ANOVAs, and post-hoc Newman-Keuls tests for mothers' and children's behaviors during Sesame Street, Dribble, and Letter Book. In Table 1 we see that maternal behaviors during Sesame Street differed for narration and reading instruction. In the youngest age group, the interpretation of the stories and illustrations was more important, whereas in the older age groups more attention was paid to reading instruction. The older children tried to read more often, and they showed less distracted behavior. During Dribble, mothers of older children also paid more attention to reading instruction. Narration was emphasized most in the group of 3½-year-olds, and least in the youngest group. The oldest children tried to read most often, whereas story exploration was emphasized less in the two older age groups. During Letter Book, the number of problematic interactions (disciplining, distraction) diminished with age, perhaps because Letter Book is a difficult task. As for the content of the interactions, more attention was paid in the older groups to reading instruction and attempts to read. However, in contrast to Sesame Street and Dribble, the number of maternal narrations did not differ between age groups. Children's story explorations were more frequent in the two older age groups.

Attachment.—Quality of attachment can influence maternal as well as children's behavior because it is a relationship characteristic. By means of Pearson correlations between mother-child security and interaction during Sesame Street and book reading, we tested the hypothesis that a higher degree of security is related to more harmonious interactions and to more frequent proto-reading and reading instruction.

From Table 2 it can be derived that in more secure dyads less problematic interactions were observed, that is, less maternal disciplining and fewer distractions on the part of the child. Especially during Sesame Street and Letter Book, secure children appeared to be more focused on their task and tried

to perform better than anxious children. Mothers of secure children gave more reading instructions during Dribble than mothers of anxious children, and in secure dyads, the children tried to read more often during Sesame Street and Dribble. Securely attached children also tended to explore stories and illustrations more than anxiously attached children, especially during Dribble. In sum, quality of attachment was related not only to the atmosphere of the interactions but also to their content: reading instruction and proto-reading were more prominent in securely attached dyads than in anxiously attached dyads. Although the significant correlations are moderate, their number is quite considerable. In the next paragraphs we will show that reading instruction and proto-reading are related to the outcomes of emergent-literacy tests.

Emergent literacy.—From Table 3 we see that the two older age groups differed in knowledge of functional as well as linguistic aspects of written language. Mean scores indicated that 3½-year-olds appeared to have acquired less knowledge of written language than 5½-year-olds, but the oldest children differed rather strongly from each other, as can be seen from the relatively large standard deviations. Pearson correlations were computed to determine whether interactions during the three tasks were related to emergent literacy as measured by the five tests.

From Table 4, it can be seen that mothers of children who scored higher on emergent-literacy tests paid less attention to narrations, that is, interpretation of illustrations and stories, and tended to give more reading instructions. Children's behaviors tended in the same direction. Although not all correlations were significant, the correlation pattern was clear—negative correlations between emergent-literacy tests and narration or story exploration, and mainly positive correlations between emergent-literacy tests and reading instruction or proto-reading during the tasks.

Discussion and Conclusion

In this study we explored whether mothers, anticipating formal reading instruction, try to instruct their children to read, and how their interaction characteristics are related to the attachment relationship with their children and to independently measured emergent literacy. To our knowledge, this study is the first exploration of the relation between mother-child attachment and aspects of emergent literacy.

TABLE 1
 MEANS (and Standard Deviations) OF MOTHERS' AND CHILDREN'S BEHAVIORS (per Minute) DURING SESAME STREET AND BOOK READING

BEHAVIOR	1½ (n = 16)		3½ (n = 15)		5½ (n = 13)		F	WILKS'S LAMBDA
	M	(SD)	M	(SD)	M	(SD)		
Sesame (mother):								.51***
Disciplining	.5	(.4)	.3	(.6)	.6	(.6)	.72	
Narration	1.9 ^a	(1.1)	1.3 ^b	(1.1)	.4 ^b	(.4)	8.03***	
Reading instruction	.2 ^a	(.4)	.8 ^b	(.9)	.9 ^b	(.8)	4.49*	
Sesame (child):								.40***
Distraction	1.2 ^a	(.7)	.4 ^b	(.7)	.4 ^b	(.4)	7.81***	
Story exploration	.7	(.8)	.9	(.8)	.3	(.3)	2.56	
Proto-reading	.0 ^a	(.0)	.5 ^b	(.6)	.7 ^b	(.4)	10.32***	
Dribble (mother):								.53***
Disciplining	.6	(.5)	.3	(.5)	.2	(.5)	2.88	
Narration	5.8 ^a	(2.9)	9.5 ^b	(3.1)	7.0 ^a	(2.3)	7.18**	
Reading instruction	.1 ^a	(.3)	.2 ^a	(.3)	.6 ^b	(.8)	4.84**	
Dribble (child):								.41***
Distraction	.4	(.7)	.2	(.3)	.1	(.2)	1.83	
Story exploration	2.5 ^a	(2.9)	7.7 ^b	(2.2)	7.0 ^b	(1.8)	21.35***	
Proto-reading	.0 ^a	(.0)	.2 ^a	(.5)	.4 ^b	(.5)	4.48*	
Letter Book (mother):								.51***
Disciplining	.6 ^a	(.8)	.3 ^{ab}	(.3)	.1 ^b	(.3)	3.16*	
Narration	5.8	(2.4)	7.3	(3.3)	5.4	(3.1)	1.60	
Reading instruction	1.0 ^a	(1.7)	6.2 ^b	(4.4)	8.7 ^b	(5.6)	13.82***	
Letter Book (child):								.18***
Distraction	1.1 ^a	(1.4)	.3 ^b	(.3)	.1 ^b	(.3)	5.58**	
Story exploration	1.4 ^a	(1.8)	6.3 ^b	(2.8)	7.1 ^b	(3.4)	19.84***	
Proto-reading	.0 ^a	(.0)	1.1 ^a	(1.1)	4.4 ^b	(4.0)	14.17***	

NOTE.—Means not sharing the same superscript are significantly different ($p < .05$) according to the Newman-Keuls post-hoc test.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

TABLE 2
CORRELATIONS BETWEEN MOTHER-CHILD SECURITY AND INTERACTION
DURING SESAME STREET AND BOOK READING

INTERACTION	SECURITY (N = 43)		
	Sesame	Dribble	Letter Book
Mother:			
Disciplining	-.45***	-.26*	-.17
Narration	-.10	.17	.00
Reading instruction ....	.16	.30*	.02
Child:			
Distraction	-.31*	-.08	-.27*
Story exploration .....	.25	.33*	.10
Proto-reading .....	.29*	.31*	.19

* $p < .05$.
 ** $p < .01$.
 *** $p < .001$ (one-tailed).

A first goal of this study was to describe the content of reading-related mother-child interactions across age and tasks. In accordance with Vygotsky's theory (Van IJzendoorn & Van der Veer, 1984), attention to formal aspects of written language changes with age. As children grow older, interest in formal aspects increases. Their mothers pay less attention to narration, that is, the interpretation of illustrations and stories, in favor of reading instruction. Going through a picture book or a letter book stimulates mother and children to pay more attention to reading at an interpersonal level than does a Sesame Street program focusing on reading, perhaps because the speed with which everything on TV happens gives mothers and children too little time to react. Although the same tasks are used in three different age groups, they appear to be equally challenging to the children because they allow both participants to focus on aspects of different complexity. Never-

theless, developmental trends should not be generalized beyond the specific tasks used in this study. In informal discussions after the observation sessions, almost all mothers denied ever giving reading instruction to their children (see also Thomas, 1985). Our results suggest, however, that they certainly do if their children show some interest in reading. Mothers name letters, try to make the child recognize sounds in words, and connect letters to well-known words.

A second goal of this study was to determine whether socioemotional characteristics of the mother-child relationship are related to interactional patterns during Sesame Street and reading books, thereby perhaps exerting some influence on the child's literacy experiences. We showed that the atmosphere surrounding the interaction of securely attached dyads is more positive than that of the anxiously attached dyads. In securely attached

TABLE 3
MEANS (and Standard Deviations) ON THE EMERGENT-LITERACY TESTS
OF 3½- AND 5½-YEAR-OLDS, AND RESULTS OF ANALYSES OF VARIANCE

EMERGENT-LITERACY TESTS	3½ ^a		5½ ^a		F ^b
	M	(SD)	M	(SD)	
Reading	2.0	(.4)	3.9	(.9)	53.58***
Constructing words	1.6	(.5)	2.2	(.6)	8.89**
Function	1.1	(1.3)	5.7	(1.9)	53.89***
Conventions	1.5	(.9)	4.3	(1.2)	46.52***
Sound-names .....	.6	(1.0)	4.9	(4.1)	14.52***

^a $n = 14$.
^b Hotelling's $T^2 = 4.26$, $F(5,22) = 18.76$, $p < .001$.
 ** $p < .01$.
 *** $p < .001$.

TABLE 4

CORRELATIONS BETWEEN MOTHERS' AND CHILDREN'S BEHAVIORS AND THE EMERGENT-LITERACY TESTS

	EMERGENT-LITERACY TESTS (<i>n</i> = 28)				
	RD	CW	FN	CV	LN
Mother:					
Sesame Street:					
Narration	-.31	-.54***	-.42**	-.33*	-.31
Reading instruction .....	.22	-.11	.15	.16	.16
Dribble:					
Narration	-.30	-.29	-.28	-.48**	-.23
Reading instruction .....	.19	.12	.19	.21	.22
Letter Book:					
Narration	-.33*	-.37*	-.47**	-.42**	-.55***
Reading instruction .....	.00	.04	.24	.13	.02
Child:					
Sesame Street:					
Story exploration	-.28	-.35*	-.40*	-.22	-.34*
Proto-reading .....	.34*	.20	.26	.31	.34*
Dribble:					
Story exploration	-.01	-.14	-.17	-.21	-.26
Proto-reading .....	.16	.07	.08	.10	.33*
Letter Book:					
Story exploration	-.08	-.16	-.09	-.14	-.35*
Proto-reading .....	.68***	.54***	.58***	.59***	.57***

NOTE.—RD = reading, CW = constructing words, FN = function, CV = conventions, LN = letter names.

* $p < .05$.** $p < .01$.*** $p < .001$ (one-tailed).

dyads there is less need to discipline; the children are less distracted than in anxiously attached dyads. These results coincide with the results of studies on differences in enthusiasm and curiosity between secure and anxious children in difficult task settings (Matas, Arend, & Sroufe, 1978; Sroufe, 1983), as well as with the results of studies on obedience and cooperativeness with the mother or the experimenter (Bates, Maslin, & Frankel, 1985; Londerville & Main, 1981; Matas et al., 1978). These studies are prospective in that measures of attachment security in the child's second year are related to the child's behavior in problem-solving situations some months or years later. In our study, we relate security and problem-situation behavior at the same age (see Lamb et al., 1985).

In addition, secure dyads pay more attention to the formal aspects of written language, that is, to reading instruction and proto-reading itself. Mothers appear to require more from their securely attached children in the reading domain. This outcome confirms the results of case studies by Clark (1984), who found that parents of early readers showed a high degree of support and involvement. The result also explains why we found a positive

relation between preschoolers' reading interests and attachment security in an earlier study (Bus & Van IJzendoorn, in press). Mothers of securely attached children are perhaps able to demand more of their children because these children have developed more trust in their caregiver (Bretherton, 1985) and more ego resilience in difficult situations (Arend, Gove, & Sroufe, 1979; Sroufe, 1983).

A third question concerned the relation between mother-child interactions and emergent literacy. As expected, the interaction is related to emergent literacy. If children score higher on the emergent-literacy tests, they tend to pay more attention to reading and get more reading instruction and are less intensively instructed in the interpretation of illustrations and stories. Early reading acquisition, therefore, does not appear to be a "natural" process but must be viewed as an informal teaching-learning process (Holdaway, 1979; Mason, 1980; Teale, 1982). Because of the short duration of the observation sessions and the broad age range of the sample, we measured this teaching-learning process rather globally. Further differentiation into components of the process might be informative in explaining different components of emergent

literacy and might strengthen the correlations between mother-child interaction, attachment, and emergent literacy.

Because of the correlational approach of this study, it remains unclear which factors triggered emergent literacy. Do children stimulate their mothers to give reading instruction out of curiosity, or does emergent literacy originate during this kind of interaction? Whatever the causal direction, it is our conviction that children with more emergent-literacy competence will acquire more knowledge in instructional interactions with their mothers. Therefore, competence differences in children grow larger, not only during primary school (Stanovich, 1986) but during early childhood as well.

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