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**Storybook reading, attachment, and emergent literacy: some experimental studies with children from lower socioeconomic status families**

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Storybook Reading, Attachment, and Emergent Literacy.  
Some Experimental Studies with Children from Lower  
Socioeconomic Status Families

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### Abstract

In this paper we hypothesize that early knowledge about written language is stimulated through storybook reading at home. Furthermore, we suggest that attachment security is related to the frequency and quality of storybook reading, and to children's emergent literacy skills. In the first study, we compared 18 three-year old children who were daily read to, with a matched group of 18 children who were read to once a week or less. In the second study, the frequency of storybook reading was experimentally increased in half of the children who were read to once a week or less. All mother-child dyads were from low socio-economic status families. Results show that children with few storybook reading experiences fall behind in emergent literacy skills; their interactions with their mother during storybook reading shows that they are less involved and have to be supported more intensively by their mothers. They also are more anxiously attached to their mothers. The experimental study showed that the quality of storybook reading can be changed effectively through a short-term, extensive parent intervention program stimulating the mothers to read more frequently to


their toddlers.

Due to the emphasis on phonics, research into early reading development has mainly been focussed on prereading skills such as naming letters and blending phonemes. Since these skills were generally thought to be acquired as part of school learning, researchers rarely considered children's knowledge prior to school entry. As researchers began to view reading within the larger context of cognitive and linguistic development, they began to pay more attention to reading development prior to formal instruction (Ferreiro & Teberosky, 1982; Sulzby, 1985; Teale & Sulzby, 1986). In this research, an interactive model of reading is preferred to a skill-oriented model focussing on relatively independent components such as phoneme blending and letter knowledge (Hiebert, 1988). The idea is that knowledge about function (why and how people use written language), conventions (starting at the top of a page, reading from left to right, etcetera), and schemes (how written language differs from oral language) is just as important as knowledge of letter-sound relations (Lomax & McGee, 1986; Taylor, 1986). Therefore, children's attempts to make meaning of written messages, and to produce their own

meaning through writing became a topic of research. From this research it appeared that young children know more about written language than was expected. However, there are considerable individual differences between children (Bus, 1986). The purpose of the present studies into emergent literacy skills is to explore which experiences influence early reading development, and how differences in emergent literacy skills at the start of formal reading instruction can be explained.

#### Mother-child interactions during storybook reading

Our first hypothesis is that knowledge about written language is stimulated through activities such as storybook reading at home. This hypothesis is derived from studies into so-called early readers (Durkin, 1966), from longitudinal studies into the predictive value of storybook reading experiences during the preschool period (Watson & Shapiro, 1988, Wells, 1985), and from some experimental studies into the influence of storybook reading at school (Cohen, 1968; Feitelson, Kita, & Goldstein, 1986). Parents' behaviors during storybook reading may influence the instructional rules of the activity. Characteristics of effective parent-child reading include asking



questions during reading, encouraging children to ask questions, and responding to the children's questions (Flood, 1977, Shanahan & Hogan, 1983) Emergent literacy may be stimulated by children's attempts to imitate their parents' behavior. Through imitation they acquire new behavior which initially they were only able to show with the parents' help (Teale, 1982). For example, mothers turn their children's attention to "their own letter" (the first letter of their name). Accordingly children develop more interest in this aspect, and start calling attention to their letter spontaneously. The communication on this topic stops when this aspect of written language has become self-evident. Therefore, reading is first practiced on an interpersonal level, and afterwards intrapersonally integrated (Pellegrini, Brody, & Sigel, 1985). As children's knowledge about written language increases, instruction on a rudimentary level decreases, for example explanations of the storybook illustrations, and more attention is paid to complicated aspects such as the story meaning (Bus & Van IJzendoorn, 1988b). It depends on the children's competence how much guidance and support is needed. With more competent children less adult direction is

needed to sustain involvement (Pellegrini, McGillicuddy-Delisi, Brody, & Sigel, 1986). Adults adapt their behavior intuitively to what Vygotsky called "the zone of proximal development" (Vygotsky, 1978).

Because of its correlational character, research into parent-child interactions during storybook reading has not made clear which factors trigger emergent literacy. Do children stimulate their mothers to give reading instruction because of the children's spontaneous curiosity, or does emergent literacy originate during this kind of instruction? In an experimental study with preschoolers with little reading experiences, Morrow (1988) found that repeated readings did increase the number and complexity of questions and comments made by children. Repeated readings were found to result in more interpretative responses and more responses focussing on print and story structure, and were more effective with children of low ability. It remains unclear whether similar effects are to be found when the intervention is executed by the mother and not, as in Morrow's study, by the experimenter. Furthermore, several studies showed that during storybook reading lower class

mothers instruct their children less effectively than higher class mothers (Heath, 1980, Ninio & Bruner, 1978). Therefore, especially with lower class mothers intervention effects may differ from studies using experimenters as instructors. Lastly, it also remains unclear whether stimulation of storybook reading not only influences the quality of the reading (Morrow, 1988), but children's emergent literacy skills as well. Traditionally, researchers have used outcome measures such as test scores, as measures of effective teaching. In this study we will also examine the strategies that parents use to involve children in a task at a certain level. That is, the extent to which adult direction is needed to help children solve a problem or complete a task is the criterion for evaluating children's responses. A child needing much adult guidance and support is considered to be less competent than a child who completed the task with minimal guidance (Pellegrini, McGillicuddy-DeLisi, Sigel, & Brody, 1986).

#### The relation between attachment and emergent literacy

A second hypothesis in our study is that the affective characteristics of the relationship between parents and children influence the frequency and

quality of storybook reading and, consequently, children's emergent literacy skills. According to attachment theory, a secure attachment relationship serves as a safe base from which to explore the social and physical environment (Lamb, Thompson, Gardner, & Charnov, 1985). Children who have an anxious relationship to their parent, have little confidence in the availability of their parent when left alone. These children remain anxiously focussed on their caregiver, and do not pay as much attention to their environment as securely attached children: their explorations of uncharted aspects of their environment, such as written language, is supposed to be less frequent and less thorough. Therefore, anxiously attached children may acquire less emergent literacy skills than securely attached children as a consequence of their lesser exploratory inclinations (Bus & Van IJzendoorn, 1988a).

Furthermore, we hypothesize that during demanding and stressful situations an anxious parent-child relationship leads to less harmonious interactions and instructions, as anxious children are less obedient and more easily distracted than securely attached children (Ainsworth, Blehar, Waters, & Wall, 1978;

Bretherton, 1985) Storybook reading is an example of a demanding situation, which requires patience and trust on both sides. The parents must be able to keep the children's attention through reading at the right level, giving explanations, and asking questions. The children should rely on the parents when asking for help during the exploration of written material and illustrations, and should challenge the parents to give explanations through questions and other signals.

From an earlier cross-sectional study with middle class families (Bus & Van IJzendoorn, 1988b), it can be derived that the atmosphere during activities such as storybook reading is indeed correlated with security. The study shows that the atmosphere surrounding the interactions in securely attached dyads is more positive than that in anxiously attached dyads. 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 pay more attention to the formal aspects of written language, that is, to reading instruction and proto-reading itself. Parents appear to demand more from their securely attached children in the reading domain (Bus & Van IJzendoorn,

1988b).

The positive relation between preschoolers' reading interest and attachment security which we found in an earlier study (Bus & Van IJzendoorn, 1988a), can therefore be explained as a consequence of the differences in atmosphere. However, an alternative explanation of the correlation between the affective characteristics of the relationship and emergent literacy can not be excluded: securely attached children may be more inclined to explore written language and, through that, may acquire more literacy skills; because of their curiosity and their emergent literacy skills they provoke more parental storybook reading on a higher level of instruction. Indeed the two interpretations about the direct or indirect effects of attachment security on emergent literacy are not necessarily incompatible. It may be that security has a direct influence on emergent literacy, because securely attached children explore more, as well as an indirect influence, because securely attached children are more easy to instruct.

In sum, two (quasi-)experimental studies will be presented to test the hypothesis that repeated storybook reading changes the quality of interactions

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during storybook reading, and stimulates emergent literacy skills. Furthermore, it is examined whether attachment security is related to frequency and quality of storybook reading, and to differences in the acquisition of emergent literacy skills. Because we intended to carry out an intervention study in low socioeconomic status families (SES), and little is known about storybook reading, attachment, and emergent literacy skills in a low SES population, we first explored the relations between storybook reading, attachment, and emergent literacy in a quasi-experimental study comparing children who are frequently read to and children with little reading experiences. Secondly, the intervention study is presented, in which the effects of experimentally increased frequency of storybook reading on quality of the reading and on emergent literacy skills are examined.

#### STUDY I

In the quasi-experimental study children who are daily read to, were compared with a matched group of children who are read to once a week or less. Dependent variables were: the quality of storybook readings, the emergent literacy skills, and the

attachment relationship between mother and child.

#### Method

##### Subjects

At the start of the project, we intended to find three-year-olds from lower class families without any storybook reading experiences. However, it soon became clear that Dutch children without any storybook reading experience are very rare. We decided, therefore, to carry out a study with toddlers who are read to once a week or less. The lower class mothers and children were selected with a questionnaire. Every child with little reading experiences was matched with a child who was frequently read to, on basis of SES, age and sex. If an adequate match on these three variables could not be found, children were matched on age and SES only. Afterwards, participating mothers were paid \$15.00 as compensation. The sample consisted of 18 mothers with children that were very infrequently read to, and the same number of mothers and children who were daily read to (see Table 1 for some characteristics of the two groups).

##### Procedure

During a session with mother and child, every child

was tested individually (intelligence test/ and emergent literacy tests), mother and child were separated for about half an hour, and the mothers read the booklet Doedel and the red Danger to the children. The whole session was videorecorded. The mothers were told that the study focussed on children's play behavior. To divert the mothers' attention from the goals of the study, we started with a problem-solving task - the Butter Dish - in which written language did not play any role. The children had to solve this task with the help of their mother. From interviews afterwards, it appeared that none of the mothers had understood that the study was focussed on storybook reading and emergent literacy. We decided to collect our data in the laboratory, because for coding purposes it was necessary to record the sessions on videotape; videorecording at home was considered to be more intrusive than in the laboratory because the video recording equipment and operator would be more visible at home, especially to the child.

#### Questionnaire

To select the subjects for this study, we administered a questionnaire to mothers at several different daycare centers in Groningen (The

Netherlands). The questionnaire consisted of six questions on play behavior. Beside two questions on book reading ("Did you already start reading to your child?" and "How frequently are you reading to your child?"), four questions on other play activities were asked to keep the mothers "blind" for the study's purpose. The mothers chose from four alternatives in answering the question about the frequency of book reading: (1) less than once a month, (2) once a month, (3) about once a week, (4) (almost) every day.

### Tests

Children's intelligence was measured with the Peabody Picture Vocabulary Test (Dunn & Dunn, 1981) and the test Spatial Orientation (Frostig, 1968). To measure the emergent literacy skills, the children individually completed six tests (Bus & Van IJzendoorn, 1988b), constructed to operationalize the following aspects of early reading: function, conventions, story schemes, and mapping-rules (Taylor, 1986). In spite of our attempts to adjust the administration of the tests to our subjects, and to make them as short and simple as possible, three tests were excluded because of missing data or lack of variance. Three out of six tests yielded useful

information: function, letter recognition, and constructing words.

Function. This test consisted of 10 pictures representing activities such as playing, eating, and also-reading, and writing. It was coded how frequently children were able to correctly identify activities as reading and writing. The maximum score was six. Two coders reached 100% agreement, and the alpha reliability was .94.

Letter recognition. The child had to find the letter which was presented each time between three arbitrary signs. The maximum score on this test was five. Two coders reached 100% agreement, and the alpha reliability was .94.

Constructing words. The children were asked to make their name and the word rose (Dutch: roos), each time with a selection of the relevant letters. Their responses were scored as: (0) playing (no serious attempt), (1) figurative (building with letters), (2) random order, (3) word-like (the configuration appears to be a word, but without a relation between letters and sounds), (4) only the first (correct) letter, (5) partially correct (two or more letters in the correct order), and (6) (almost) correct. The agreement

between two coders on constructing the name was .89, and on rose .95. The final score was determined by calculating the mean. The alpha reliability was .66.

#### Attachment

Following Main, Kaplan, and Cassidy (1985, p. 80 ff), the children were separated once for about half an hour from their mothers, and their reunion was videorecorded. The children's behavior during the reunion episode was scored on a rating scale. This scale is a revised version of Main et al's (1985) security scale for six-year-olds. It consists of nine scale points with extensive behavioral descriptions of the odd scale points. The revision of the scale includes more extensive descriptions of insecure behavior, as well as an emphasis on the behavioral repertory of the younger age category. The intercoder reliability of two independent coders was .86 ( $n=15$ ). The children's behavior was scored during the first five minutes of the reunion. A similar scale for the same age group was applied in a reliable and valid way in earlier research (Bus & Van IJzendoorn, 1988b). The videotapes were coded by the second author who received his training in coding infants' reunion behavior at the Strange Situation

Workshop of the University of Minnesota (instructions L. A. Sroufe and B. E. Vaughn). There is no reason to doubt the cross-cultural validity of attachment measures based on reunion behaviors such as the Strange Situation (Van IJzendoorn & Kronenberg, 1988).

#### Storybook reading

Mothers were asked to read the narrative booklet Doedel and the red danger, which is richly illustrated and contains a clear plot. The reading sessions were transcribed verbatim. Deriving from Morrow (1988), the mothers' as well as the children's questions and comments were coded into four categories: (1) focus on story structure (intrigue, setting, plot, or characters), (2) focus on meaning (interpretations of events described in the text, word definitions), (3) focus on print (referring to reading as activity, talking about letters, sounds, and words), (4) and focus on illustrations (labeling, details, associations). The number of turns and the number of problematic interactions (the child is distracted, and the mother tries to focus his or her attention to the book) were also coded (Bus & Van IJzendoorn, 1988b). The intercoder agreement was determined for 20 sessions. For the ten categories the mean agreement

was .75; the agreement for story structure (mothers) was .73, for meaning (mothers) .82, for print (mothers) .83, for illustrations (mothers) .90, for story structure (child) .51, for meaning (child) .37, for print (child) .67, for illustrations (child) .94, for problematic interactions (.83), and for turns .90. Even after intensive training, some aspects of children's verbal behavior remained difficult to code, because they were not always able to express themselves clearly.

### Results

The two groups did not differ on intelligence, sex, SES, the number of siblings, and birth order (see Table 1). As was expected, the frequency of storybook reading did differ significantly. In one group the children were read to every day, and in the other group once a week or less.

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-Table 1-

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First, it was examined whether there were differences between the two groups in the quality of storybook reading. We expected that children with many reading experiences would be more active, less in

need of adult support, and would communicate on a higher level. To test this hypothesis, we compared the mothers' and the children's behavior during the reading sessions. Mothers of children who are read to frequently, appeared to be less commenting on illustrations and story structure. The number of turns was also significantly higher in dyads with less storybook reading experiences which often indicates that parents are actively eliciting children's utterances (Pellegrini et al., 1985). Furthermore, the children who are read to frequently, tended to behave less often negatively ( $p=.06$ ). Other differences in child behavior did not reach significance, and in both groups most of the questions and comments focussed on the illustrations.

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-Table 2-

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Secondly, it was tested whether there were any differences in emergent literacy skills, and whether differences in emergent literacy skills were correlated with the quality of the interactions during storybook reading. It appeared that children with

daily reading experiences scored higher on reading tests. According to a multivariate analysis of variance, the differences were significant (Wilks'  $\lambda = .76$ ;  $F(3,32) = 3.42$ ;  $p = .029$ ). Post hoc univariate analysis of variance showed that the knowledge about the function of reading and writing differentiated significantly between the two groups. The mean scores on letter recognition and constructing words appeared to be low for both groups.

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-Table 3-

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Correlating behavioral observations during storybook reading with the reading tests, it was investigated whether the quality of storybook reading is related to emergent literacy skills. The most important result of these analyses was that the atmosphere during storybook reading was indeed, related to emergent literacy skills. As children reached higher scores on the emergent literacy tests, the number of problematic interactions decreased. In addition, we found some trends. As children knew more, the mothers tended to pay more attention to the

story meaning, and less to the illustrations. Furthermore, children with higher scores on the emergent literacy tests tended to make more comments about the structure and the meaning of the story.

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-Table 4-

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Thirdly, it was examined whether differences in frequency and quality of storybook reading was related to attachment security. Especially in the group children with few reading experiences it sometimes was impossible to arrange the separation and to observe the reunion behavior because of the child's anxiety. Therefore, these analyses concern only 31 children. Children who are infrequently read to, appeared more often anxiously attached to their mothers. On a scale ranging from one (very anxious) to nine (very secure), the reading group had a mean score in the secure range ( $M=5.6$ ,  $SD=1.2$ ,  $N=17$ ), and the non-reading group had a mean score lower than five which is considered to be the boundary score between secure and anxious attachment ( $M=4.2$ ,  $SD=1.2$ ,  $N=14$ ). The difference was substantial (1.5 scale point), and

significant ( $E(1,29)=5.74$ ,  $p<.05$ ), and would probably have been higher without selective attrition. We did not find a significant correlation between attachment security and mother-child interaction during storybook reading.

Finally, it was tested whether attachment was related to emergent literacy skills. Table 5 shows that the correlations were positive, and that two out of three correlations were significant. The more securely attached the children were, the more proficient their reading skills appeared to be. Control for verbal intelligence, which was most strongly correlated with the reading tests, yielded similar results.

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-Table 5-

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#### Discussion

In this quasi-experimental study, it is first explored whether in a lower SES sample the frequency of storybook reading is related to the quality of the reading, and to children's emergent literacy skills. We matched a group of children with almost no reading

experiences to a comparison group of children who are daily read to. These two groups do not differ on relevant background variables such as SES, age, intelligence, number of siblings, and birth order. Therefore, it is not plausible to suggest that these variables influence possible differences between the two groups in emergent literacy skills, attachment security, and frequency and quality of storybook reading.

We found evidence for the hypothesis that quality of storybook reading is related to its frequency. Children who are read to frequently, need less maternal guidance and support during storybook reading than children with few storybook reading experiences. The former group also behaves less often negatively during storybook reading, and their mothers do not need to be very active to involve the children. This relation may also be considered to imply more reading competence in the group of children who are frequently read to (Pellegrini et al, 1986). Probably because three-year-olds appear to be mainly focussed on storybook illustrations (Yaden, Smolkin, & Coulon, 1989), we did not find a relation between frequency of reading experiences and children's focus of attention.

We also measured emergent literacy skills with several reading tests. Our findings confirm the hypothesis that frequency of storybook reading is related to emergent literacy skills. Three-year-olds who are read to daily, do have more knowledge about written language, and especially about the function of reading and writing. Insight into the function of written language is to be considered as a first step in the development of reading (Ferreiro & Teberosky, 1982; Lomax & McGee, 1987; Mason, 1980).

Exploring the relation between quality of storybook reading and emergent literacy skills, we found that children who have more knowledge about written language, show less problematic interactions, and tend to pay more attention to difficult aspects of the storybook, such as the meaning of the story. Their mothers also tend to emphasize the meaning of the story more than mothers of children with less emergent literacy skills. Although the differences were small, these findings support the hypothesis that the level of communication during storybook reading is related to children's emergent literacy skills (Bus & Van IJzendoorn, 1988b; Morrow, 1988).

Our second purpose was to explore the relation

between attachment security on the one hand, and the frequency and quality of storybook reading, and emergent literacy skills on the other hand. Children with many reading experiences appear to be more securely attached than the children with few storybook reading experiences, and securely attached children show more knowledge about written language. We did not find a relation between attachment security and the quality of the interactions during storybook reading. Thus, the hypothesis that an indirect relation between security and emergent literacy exists (securely attached dyads enjoy storybook reading more and practice it more frequently, and on a higher level of communication, and, therefore, securely attached children know more about written language than anxiously attached children) is not confirmed. In that case, attachment security should be correlated with the atmosphere during storybook reading and with the quality of the communication. Our data support, however, the hypothesis that a secure attachment relationship between mother and child is related to the frequency of storybook reading, and furthermore, that attachment security stimulates the exploration of written language and thereby the acquisition of

emergent literacy skills (Bus & Van IJzendoorn, 1988b).

## STUDY II

Although our first study with lower SES families shows relations between the frequency of story reading on the one hand, and emergent literacy skills, quality of storybook reading, and attachment on the other hand, some questions about the causality of the relation are unanswered. The results of the quasi-experimental study do not prove that storybook reading is a sufficient condition to stimulate emergent literacy skills. Storybook reading may not be the cause but the consequence of emergent literacy skills. Children with more knowledge about written language may be more interested, and, because of that, more frequently involved in storybook readings. To test the hypothesis, that storybook reading is a sufficient condition to stimulate emergent literacy skills we carried out an intervention-experiment. The group with relatively few storybook reading experiences was randomly assigned to a control ( $n=9$ ) and an experimental group ( $n=9$ ). In the experimental group the reading frequency was raised to a frequency of at least three times a week, and in the control group a

dummy intervention was carried out. The experiment continued for six weeks. We expected to find an effect of increased storybook reading on quality of the storybook reading, and on emergent literacy skills. Because we did not find the expected relation between attachment security and quality of storybook reading in the first study, the results of the intervention were not expected to depend on the children's attachment security.

#### Method

##### Procedure

We visited the mothers weekly in order to deliver new material (three new booklets or three new games), and to inquire after the experiences during the preceding week. The mothers received 18 books or games in total. The booklets were illustrated stories with a clear plot, and had about the same length. The games were derived from a children's periodical (called Bobo), and consisted of tasks such as "find the differences" between two almost identical pictures. The mothers chose a proper time for the activities, and determined which of the three books or games were used and how. We only suggested to read or play just before bedtime. The mothers in the

experimental group recorded each week at least one reading session on audiotape. After the intervention, the mothers and children were invited to visit our lab. The same procedure was carried out as during the pretest: we videorecorded a book reading session (the mothers read the narrative booklet Where is Teddy?, which was comparable in content and illustrations to the pretest booklet), and the reunion episode after a long separation, and each child individually completed several reading tests. Participating mothers were paid \$25.00 as compensation.

#### The intervention

From our weekly inquiries, it appeared that the mothers did carry out the intervention carefully. During several weeks, the activities were even done more than three times a week: in the control group in four out of six weeks and in the experimental group in three out of six weeks. The mothers volunteered that the children also played alone with the books or games. For a better understanding of the mothers' behavior during storybook reading, the audiorecorded reading sessions at home were transcribed verbatim and the maternal behavior was coded on the following categories: focusing on story structure, on meaning,

on print, or on illustrations. Inspecting the means, it appeared that the maternal behavior was stable, and that most attention was paid to illustrations, followed by meaning, structure, and print successively (see Figure 1).

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-Figure 1-

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#### Results

The two randomly assigned groups did not differ on background variables like age, sex, SES, intelligence, reading experiences at home, birth order, number of siblings, and attachment security (see Table 6).

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-Table 6-

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Firstly, it was examined whether repeated readings stimulate changes in the quality of the interactions during storybook reading. Because the sample was small, separate t-tests were performed. On the pretest, the two groups only differed on number of problematic interactions: the control group scored somewhat higher ( $p < .05$ ). The two groups did, however, differ on several posttest variables. Children from

the experimental group scored significantly higher on illustrations as well as on meaning. As can be derived from the negative t-values, the mothers in the experimental group tended to be less active. In case of the most frequent category - focussing on illustrations by the mother - the difference between the means was significant. Analyses of variance with the pretest as covariate (ANCOVA's) yielded the same results for the interactive behaviors of the children as well as the mothers.

To determine whether the effects of the intervention were related to attachment security, we also carried out analyses of variance with security as covariate. We did not find significant interactions between attachment security and the intervention.

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-Table 7-

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Finally, it was examined whether repeated readings had any effect on emergent literacy skills. The findings did not confirm this hypothesis. On the pretest as well as on the posttest, we did not find significant univariate differences between the experimental and control group on emergent literacy

skills. Analyses of variance with attachment as covariate (ANCOVA's) did not change the results.

#### Discussion

To examine the relation between repeated storybook readings and emergent literacy, we carried out an experimental study. This small-scale study (in total 18 mother-child dyads participated) supports the hypothesis that repeated readings have an effect on the quality of the interactions between mother and child. Increased frequency of storybook readings leads to more active behavior of the children (more comments or questions about illustrations and meaning). Therefore, the children's activity appears to be a consequence of storybook reading experiences and not a consequence of children's characteristics such as intelligence. (Considering the low intercoder reliability of children's comments and questions on meaning, the relation between meaning and frequency of storybook reading is substantial because unreliability of variables is a sufficient reason for weak effects, and it can not cause effects to be spuriously strong; Cohen & Cohen, 1983.) Furthermore, increased frequency of storybook readings leads to a decrease of maternal activity. This may imply more reading

competence in the experimental group, since the extent to which adult direction is needed to help children solve a problem or complete a task is a criterion for judging children's performance (Pellegrini et al, 1986). We did, however, not find any direct effect on emergent literacy skills. The relatively short duration of the intervention as well as the rather restricted instructional behavior of the mothers (they mainly focussed on the illustrations and much less on the story meaning or structure), may have been the cause of this lack of effect on emergent literacy as measured by the early reading tests. Pellegrini et al. (1985) however suggest that children's level of activity may be a more sensitive index of their competence than more traditional psychometric measures.

The study did not yield evidence for a positive or negative influence of attachment security on the intervention effects. However, considering the absence of a relation between attachment security and quality of storybook reading in the first study, we could hardly expect such effects.

#### SUMMARY AND CONCLUSIONS

In this paper the relation between frequency and

quality of storybook readings, emergent literacy skills, and attachment security is explored. The research presented here is the first to address the question whether in a low socio-economic status sample relations exist between frequency and quality of storybook reading, emergent literacy skills, and attachment security. Our intervention study is the first to aim at changing frequency of maternal storybook reading, and to focus on the effects of the intervention on the children's emergent literacy skills. It should be kept in mind, however, that the generalizability of our results may be restricted because of the use of one text genre and bookformat, i.e. narrative storybooks with illustrations, which could be less familiar to children from lower SES families (Cornell, Senechal, & Broda, 1988; Pellegrini, Perlmutter, Galda, & Brody, 1989).

Our first hypothesis is that children acquire new knowledge about written language by interacting with their mothers during storybook reading. Therefore, we expect that repeated readings influence the quality of the interactions and, through that, the acquisition of reading skills. The data from the present study provide partial support for this Vygotskian notion.

From our studies, it can be derived that repeated storybook readings lead to an increase of the children's activity, and to a decrease of maternal activity. In the quasi-experimental study we found that children who are frequently read to, behave less often negatively during storybook reading, and that their mothers are less active. From the experiment it can be derived that repeated readings lead to more (positive) activity of the children, including more comments on illustrations and on the meaning of the story, and to less activity of the mothers. As children experience storybook reading more frequently, they show less distracted behavior and explore written language more intensively. Their mothers become less active probably because they can rely on their children's increased motivation and competence.

Frequency of storybook reading is related to emergent literacy skills. In the quasi-experimental study, the children with daily storybook reading experiences had acquired more insight into the function of written language than the children with few reading experiences. In our intervention study, however, we were not able to show an effect of increased frequency of storybook reading on emergent

literacy skills as measured by early reading tests. Because the children in the experimental group needed less maternal support, it may be argued that the intervention increased the children's competence as indicated by the lower level of maternal activity (Pellegrini et al., 1986). Storybook reading therefore appears to be a sufficient condition to stimulate early reading development. It may also be suggested that an intervention focussing on qualitative aspects of storybook reading would result in increased emergent literacy skills as measured by our tests (Whitehurst, Falco, Lonigan, Fischel, DeBarishe, Valdez-Menchaca, & Caulfield, 1988).

Quality of storybook reading is also related to emergent literacy skills. In our quasi-experimental study, we found that the level of mother-child communication during storybook reading is higher if the child has acquired more emergent literacy skills. Furthermore, more competent children show less distracted behavior, indicating that they have more interest in written language. From a Vygotskian perspective, it can be argued that more competent children require less and qualitatively different instructional behavior from their mothers (Van

IJzendoorn, Van der Veer, & Van Vliet-Visser, 1987, Vygotsky, 1978).

Secondly, we explored the relation between attachment security, emergent literacy, and the frequency and quality of storybook reading. One hypothesis is that securely attached children are more curious, and have more interest in storybook reading and, therefore, are more frequently read to and acquire more emergent literacy skills. An alternative hypothesis is that in securely attached dyads storybook readings develop in a better emotional atmosphere, and, therefore, maternal instructions may be more effective. The studies yield most evidence for the first hypothesis. In the quasi-experimental study we did find evidence for a relation between attachment security on the one hand and emergent literacy and frequency of storybook reading on the other hand. The more securely attached the children are, the more frequent their reading experiences are, and the more literacy skills they acquire, independent from differences in intelligence. The affective dimension of mother-child interactions, therefore, appears to be related to children's literacy development. We did not find a relation between

attachment security and the quality of the interaction during storybook reading, nor did we find a relation between security and the intervention effect in the second study. Therefore, our prior finding that attachment security is related to the atmosphere during storybook reading (Bus & Van IJzendoorn, 1988b), has not been replicated. We hypothesize that we did not find the expected relation between attachment security and atmosphere because of differences between the samples. In the studies reported on here, younger children from considerably lower SES families participated.

In sum, storybook reading appears to be an important child rearing activity. Children who are being read to very infrequently differ from children who are being daily read to, in several different respects. They clearly fall behind in emergent literacy skills, at a very young age. Their interactions with their mothers during storybook reading show that they are less involved in the reading session, and have to be motivated more by their mothers. Lastly, they show more anxious attachment behavior during a reunion with the mother after being separated for half an hour, indicating

that the virtual absence of storybook reading is related to the existence of an anxious attachment relationship between mother and child. An anxious attachment relationship also appears to block the emergence of literacy skills. The quality of storybook reading, however, can be influenced effectively through a rather short-term, extensive parent intervention program stimulating the mothers to read more frequently to their toddlers. As our experimental study supports the idea that mothers from lower SES families show rather undifferentiated instructional behavior during storybook reading (see also Heath, 1980; Ninio & Bruner, 1978), it is the more surprising that our intervention is effective, although it focussed only on the frequency of storybook reading. We did not find intervention effects on emergent literacy skills as measured by reading tests, but we may derive from changes in maternal support that the children's emergent literacy skills have been positively influenced by our intervention. We suggest that a more intensive intervention focussing on changing the frequency and quality of maternal storybook reading, will lead to the acquisition of literacy skills required at the

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beginning of formal reading instruction.

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Table 1

Mean Scores on Background Variables as a Function of Storybook Reading Experiences (n=36)

Background Variables	<u>Frequency of storybook reading</u>			
	<u>high</u>		<u>low</u>	
	<u>M</u>	<u>(SD)</u>	<u>M</u>	<u>(SD)</u>
Frequency of reading	3.9	(.2)	2.6	(1.0)
Sex (% boys)	56		67	
Age (in months)	40.1	(5.5)	39.7	(5.8)
SES (max=6)	2.4	(.8)	2.2	(1.1)
Peabody (standardized score)	95.0	(20.8)	98.5	(18.0)
Spatial Orientation (max=8)	2.9	(.9)	3.3	(1.4)
Children with siblings (%)	78		84	
Birth order	2.2	(1.3)	1.6	(.5)

Table 2

Means of Mothers' and Children's Behaviors (per Minute) During Storybook Reading

	<u>Frequency of Storybook Reading</u>				
<u>Behavior</u>	<u>high</u>		<u>low</u>		
	<u>M</u>	<u>(SD)</u>	<u>M</u>	<u>(SD)</u>	<u>F</u>
-----					
Mother					
Story Structure	.6	(.4)	1.0	(.6)	5.80*
Meaning	.7	(.5)	1.0	(.7)	2.62
Print	.6	(.5)	.8	(.6)	1.40
Illustrations	3.1	(1.3)	4.2	(1.6)	4.91*
Child					
Story Structure	.1	(.2)	.2	(.2)	1.33
Meaning	.2	(.2)	.3	(.4)	1.26
Print	.1	(.3)	.1	(.2)	.00
Illustrations	1.7	(.9)	1.9	(1.1)	.37
Mother-Child					
Turns	6.9	(3.1)	10.6	(4.0)	9.06**
Problematic	.6	(.9)	1.5	(1.6)	3.81+

+  $p < .1$ ; \* $p < .05$ ; \*\* $p < .01$ .

Manova (mother): Wilks' Lambda=.70;  $F(4,31)=3.38$ ;  $p=.02$ .

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Manova (child): Wilks' Lambda=.95;  $F(4,31)=.40$ ;  $p= .80$ .  
Manova (mother-child): Wilks' Lambda=.79;  $F(2,33)=4.40$ ;  $p= .02$ .

Table 3

Mean Scores on the Emergent Literacy Tests as a Function of  
Storybook Reading Experiences (n=36).

	<u>Frequency of Storybook Reading</u>				
	<u>high</u>		<u>low</u>		<u>F</u>
	M	(SD)	M	(SD)	
Function (max=6)	3.8	(1.0)	2.5	(1.3)	16.36*
Letters (max=5)	1.8	(1.5)	1.4	(1.2)	1.88
Words (max=6)	1.7	(1.4)	1.4	(1.5)	.54

\* $p < .001$ .

MANOVA: Wilks' Lambda=.76,  $F(3,32)=3.42$ ,  $p=.029$ .

Table 4

Correlations between Mothers' and Children's Behaviors and the Emergent Literacy Tests (n=36).

	Function	Letters	Words
Mother			
Story Structure	-.33*	-.12	-.09
Meaning	.25	.23	.33*
Print	.02	-.27	-.01
Illustrations	-.26	-.50***	-.18
Child			
Story Structure	-.07	.27*	.43**
Meaning	.21	.39**	.20
Print	-.05	.10	.02
Illustrations	.05	.08	.22
Mother-Child			
Turns	-.25	-.14	-.02

Skills (n=31)

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	Attachment Security	
	without	with
Emergent literacy skills	correction for IQ	correction for IQ
Function	.30*	.33*
Letters	.22	.23
Words	.43**	.43**

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N=31

\* $p < .05$ . \*\* $p < .01$

Table 6

Mean Scores on Background Variables of the Experimental and Control Group (n=18).

	Experimental Group (N=9)	Control Group (N=9)
	M (SD)	M (SD)
Frequency of Reading	2.4 ( 1.1)	2.7 (1.0)
Sex (% boys)	56	78
Age (in months)	40.0 ( 6.1)	39.0 (5.7)
SES	2.2 ( 1.6)	2.2 ( .4)
Peabody (standardized scores)	99.0 (18.5)	98.0 (18.5)
Spatial Orientation (max=8)	3.1 ( 1.4)	3.7 ( 1.5)
Children with siblings (%)	78	78
Birth Order	1.7 ( .5)	1.6 ( .5)
Attachment (max=9)	4.4 ( 1.3)	4.1 ( 1.5)

Table 7

Means of Mothers' and Children's Behavior (per Minute) During Storybook Reading (Posttest) (n=18).

	Experimental group (N=9) M (SD)	Control Group (N=9) M (SD)	t
<b>Mother</b>			
Story Structure	.8 ( .5)	1.1 ( .7)	-1.02
Meaning	1.2 ( .6)	1.5 ( .8)	- .93
Print	.4 ( .5)	.5 ( .3)	- .56
Illustrations	2.3 (1.4)	3.5 (1.6)	-1.78+
<b>Child</b>			
Story Structure	.4 ( .7)	.2 ( .2)	1.19
Meaning	.6 ( .6)	.2 ( .2)	1.98*
Print	.0 ( .1)	.1 ( .2)	-1.23
Illustrations	2.0 (1.2)	1.0 ( .4)	2.27**
<b>Mother-Child</b>			
Turns	9.7 (4.3)	8.2 (2.8)	.89
Problematic	1.4 (2.3)	1.5 (1.7)	- .16

+p<.1. \*p<.01. \*\*p<.001.

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Figure 1

Mean Scores of Maternal Behavior During Storybook Reading  
Sessions at Home (per Week and per 5 Minute Time-Interval)

