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ABSTRACT

This study explored the extent and nature of the literacy artifacts, references, and events in the homes of three preschool children with Down Syndrome. Analyses were based on observations and tape recordings taken during home visits. Major conclusions included: (1) the homes of the preschoolers were print rich, and literacy references and events did occur, but at a modest level; (2) variety in types of literacy activity was negligible, with nearly all of the literacy-event time being consumed by storybook sharing; (3) mothers' style of literacy and language interactions with the children was characterized as fitting differing points on a mother-as-teacher continuum; (4) the three families spent about half as much time as families of nondisabled children on literacy events; (5) two of the mothers' styles of storybook sharing were sensitive to literacy level and conducive to child's vocabulary development. Overall, it was concluded that the mothers' style of language interaction with their children was not highly likely to build foundations for literacy development. (Approximately 70 references) (JDD)

Literacy in Homes of Preschool Children with Down Syndrome

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Running head: EMERGING LITERACY

Abstract

The purpose of the present study was to explore the extent and nature of literacy artifacts, references, and events in the homes of three preschool children with Down Syndrome. A trained observer visited the children's homes twice over 2 weeks totalling approximately 6 to 10 hours. The observer completed checklists of literacy artifacts, tape recorded everything that occurred indoors, and took field notes. Analyses were done from four main perspectives: (a) From transcripts of the tape recordings, verbalizations were coded into categories for literacy references and events, as well as other categories. (b) Patterns were derived from the transcripts and field notes. (c) Storybook sharings were analyzed for a variety of story meaning-related and other types of talk. (d) Mother-child language was analyzed into selected categories such as directive and test questions. Major conclusions included: (a) The homes of the preschoolers with Down Syndrome were print rich, and literacy references and events did occur, but at a modest level. (b) Variety in types of literacy activity was negligible, with nearly all of the literacy-event time consumed by storybook sharing. (c) Mothers' style of literacy and language interactions with their children was characterized as fitting differing points on a mother-as-teacher continuum.

Literacy in Homes of Preschool Children with Down Syndrome

The purpose of the present study was to explore the extent and nature of literacy artifacts, references, and events in the homes of three preschool children with Down Syndrome.

In this study, literacy referred to reading and writing. Literacy artifact was any material with print on it (Anderson & Stokes, 1984; Teale, 1986); literacy reference was any oral mention of something about reading or writing; and literacy event or interaction was "any action sequence[s] involving one or more persons in which the production or comprehension of print play[ed] a significant role" (Anderson & Stokes, 1984, p. 26).

The importance of attaining reasonably high literacy levels for individuals in general has been widely embraced. Consequences of low literacy levels are long lasting and wide ranging--including academic lag in school, negative self concept, lowered motivation, inability to take respite and find enjoyment in good literature, limited job opportunities, and difficulties in everyday tasks (such as reading labels in the grocery store) (Applebee, Langer, & Mullis, 1987; Hallihan, Kauffman, & Lloyd, 1985). The consequences of minimal literacy levels for individuals with disabilities may be especially deleterious. Because literacy is linked to many opportunities, individuals with disabilities may more ably overcome or compensate for disadvantages if they have advanced literacy levels.

A recent perspective on initial literacy development of children without disabilities suggests the underpinnings of literacy may originate during the preschool years, long before formal schooling takes place (Goelman, Oberg, & Smith, 1984; Hall, 1987; Taylor, 1983; Teale & Sulzby, 1986). Prior to learning to recognize words, use phonics, and so forth, children without

disabilities first learn reasons for reading and writing and functions of literacy (Kontos, 1986). They initially learn about written language as participants and observers in real reading and writing situations(Goodman, 1986; Hall, 1987; Teale, 1987; van Kleeck & Schuele, 1987).

Story book sharing, especially when done in particular ways, ranks high among important preschool literacy activities for children without disabilities. It can enhance children's vocabularly development (Sulzby & Teale, 1991; Templin, 1957), general language development (Chomsky, 1972; Irwin, 1960; MacKinnon, 1959), interest in reading (Mason & Blanton, 1971); and success in reading in school (Durkin, 1974-1975). These effects are most likely to be achieved when parents use an initial style of interaction which involves their children in constructing text meaning. In particular, parental elicitation ("what" questions) and provision of new information in feedback utterances are facilitative (Heath, 1982; Ninio, 1980; Sulzby & Teale, 1991).

Typically, style of storybook sharing for children without disabilities changes as children grow older (Bus & Van IJzendoorn, 1988; DeLoache & DeMendoza, 1987; Heath, 1982; Martinez & Roser, 1985; Snow, 1983; Snow & Goldfield, 1982; Sulzby & Teale, 1991). Highly interactive storyreadings gradually give way to parental reading of larger and larger chunks of text, without interruption (Sulzby & Teale, 1991). Apparently, many parents of children with disabilities adapt reading situations to the cognitive level of the child, shouldering more of the responsibility early on, and gradually "raising the ante" (Sulzby & Teale, 1991).

It is possible that where few literacy interactions occur in preschoolers' homes, parents may interact verbally with their children in ways which are facilitative of language development in general--a feature which can be supportive of many of the bases for literacy development. This may be

particularly true in homes of children with disabilities if parents feel their children can no cope with literacy situations. An example of oral facilitation which might enhance literacy ability is adult elicitation versus constraint of conversation. Conversational elicitation (e.g., requesting unknown information) (versus constraining test questions like "What's this?") can transfer to stronger child inclination to assume an elicitive (question-asking, interactive) stance with texts when reading and writing (Snow, 1983). Similarly, parental conversational mention of metalinguistic terms such as 'read,' 'write,' and 'talk,' "familiarize children with the lexicon of school-based literacy events and help, in conjunction with other strategies, make them facile with grapheme/phoneme relations" (Pellegrini, Perlmutter, Galda, & Brody, 1990, p. 444; q.v. Galda, Pellegrini, & Cox, 1989).

Clearly, families play a central role in early literacy development. Yet virtually no research on emergent literacy has been done with children with Down Syndrome, indeed with any special populations. The extent to which socialization-into-literacy practices occur in homes of children with disabilities is not known. With regard to children with Down Syndrome, it is possible that expectations of literacy development, at least during the early school years, may be low (deSouza & Bailey, 1981; Hughes, 1975; Leeming, Swann, Coupe, & Mittler, 1980). Until recently, the educational prognosis and expectations for children with mild-to-moderate retardation associated with Down Syndrome generally has been that they may eventually read and write at a functional level and most likely will not graduate from a regular education high school (Stratford, 1985). However, some minimal recent evidence indicates that if expectations for literacy development are elevated for children with Down Syndrome, some can make significant progress (Lorenz, Sloper, & Cunningham, 1985; Stratford, 1985; Wood, 1984).

Since home environment appears to have such dramatic influence on literacy development during the preschool years, and since we know relatively little about home literacy situations of children with disabilities, the present study was designed as a modest, but much-needed initial step toward such description. Children with special needs represent a very heterogeneous population with wide ranges of cognitive, language, and motor abilities. To facilitate comparison among the children, for this study, we selected three children with similar etiologies--Down Syndrome--who were functioning at similar intellectual ability levels and who came from similar family situations.

Methods

Subjects, Their Families, and Daycare Setting

Two of the children were girls--O [33 months] and M [37 months], and one was a boy-G [46 months]). All three were diagnosed (at the xxx Center [name withheld for blind review]) as having mild or moderate cognitive deficits and associated language delays. Intellectual functioning relative to chronological age fell in the mild to moderate range (Grossman, 1983); IQs were 54, 61, and 62 for O, G, and M, respectively. (For IQ, the Bayley Scale for Infant Development [Bayley, 1969] was used for O, and the Stanford-Binet Intelligence Scale [Thorndike, Hagen, & Sattler, 1986] was used for G and M.) Developmental levels, as measured by the Batelle Developmental Inventory (Newborg, Stock, Wneck, Guidubaldi, & Svinicki, 1984), were 17 months (when chronological age [CA] was 33 months), 36 months (when CA was 46 months), and 23 months (when CA was 37 months) for O, G, and M, respectively.

The children's language ability was measured by the Sequenced Inventory of Communication Development-Revised (Hedrick, Prather, & Tobin, 1984) (at CA's of 35, 48, and 38 months for O, G, and M, respectively). All three

subjects' receptive language level was 28 months. Expressive language levels for O and M were 28 months and 36 months for G. The speech clinician at the XXX Center (name withheld for blind review) described the children's expressive language as follows: O was speaking primarily single-word utterances and occasionally combined words to form two- or three-word utterances. G spoke one- to three-word sentences. Both children were easily understood by adults and children, though G's enunciation was clearer. M spoke only single-word utterances (a few consonants and single syllables), and her parents and others often had difficulty understanding her. M had learned sign language as an accompaniment to her spoken language--a not uncommon intervention practice for children with Down Syndrome.

O lived in a very rural setting, in a single-story wooden-frame house, part of which was originally a log cabin, located about 20 miles south of our university town. O's mother described her occupation as "farmer"--she tended to several goats and sheep and a large garden of fruits, vegetables, and flowers. She had two years of college and formerly worked as an aide in a daycare center. O's father completed a master's degree in education and was a psychotherapist in the university town. O's two sisters, E (four years old) and D (five months old), were present during all visitations. (Her father was not.)

G lived in a relatively new two-bedroom condominium on the outskirts of the university town. G's mother was a homemaker and had completed one year of college; at the time of the study, she was doing income taxes and typing for others to supplement the family income. G's father was a medical resident at the local university hospital. In addition to G's mother, his father was present during visits after working hours (though after dinners, he spent much

of his time in a bedroom doing work), as was his 22-month old sister, J, during her waking hours.

M lived in small two-bedroom apartment, located in our university town. Her mother was a nurse and her father was an engineer, both of whom had completed four years of college. In addition to M's mother, her father was present and participative during both visits after his working hours. M's younger seven-month-old brother, S, was also present during his waking hours.

The children attended a nationally known mainstreamed university based daycare research center (name withheld for blind review), for 4 to 6 hours a day, 5 days a week, 48 weeks a year. They will continue to attend the center until kindergarten. At this center, children with disabilities enter between five-months and two-years old. (The ages of O, G, and M at entry were 12, 13, and 5 months, respectively.) Children with no disabilities enter at age 3 months. Children are selected into the school by a procedure through which parents of children with and without disabilities in the vicinity place their names on a waiting list. Then a committee selects children, attempting to balance race, gender, socioeconomic status, and type of disability across classes. Children are grouped into classes of six, by age, with some children in same-age classes, and others in mixed-age classes. O and G were in different mixed-age classes, and M was in a same-age class. All children in the center participate in a common cognitive and social curriculum (described in Learning Games for the First Three Years [Sparling & Lewis, 1979] and Learning Games for Threes and Fours [Sparling & Lewis, 1984]). The children wit' 'isabilities also receive an individualized assessment, individualized educational plan, the resource services of a speech-language pathologist, special educator, and if needed, physical therapist. Families meet at least quarterly with the staff to review their children's progress.

Procedure

The three children's homes were visited twice (on week days) over two consecutive weeks, from the time the children arrived home from school until they fell asleep (totalling 6.00 hours in O's home, 9.17 in G's home, and 9.75 in M's home). An observer-participant followed the children during their waking hours (including going with them on any excursions, such as a visit to the beautician), completed checklists of literacy artifacts, tape recorded everything that occurred indoors, and took field notes, especially noting instances of literacy artifacts and events. Recordings were later transcribed. Each evening, the observer reread and rewrote her field notes. Total taped times for O, G, and M, respectively were 3.07 hours (more time was taped, but due to technical difficulties, could not be transcribed), 7.50 hours, and 5.81 hours.

Analyses and Variables

Categorical analysis of literacy events and references to literacy in transcripts. The categories shown in Table 1 were located in the transcripts by drawing boundary lines to show beginnings/endings of categories. After all category boundaries were established, each category was coded, and a third person replayed the tapes and timed the length of each category. Intercoder agreement with a second independent coder was .87 for category identification. The two coders did not always place boundaries between categories identically; however, 87% of the total recorded time was coded identically by the two coders.

Insert Table 1 about here.

Three variables were created for each child/family and for each of the categories listed above, as well as for all references to literacy and

literacy events combined: (a) percent of total taped observation time that was coded into the particular category; (b) number of occurrences of the category per hour of taped observation time; and (c) number of combined minutes for the particular category per hour of taped observation time. Instances of literacy references prompted by the observer's presence were not tallied (q.v. Anderson & Stokes, 1984).

Themes of home observations. The home observer compiled her field notes and drew maps of the home environments. The home observer and another coauthor read and reread the transcripts and field notes to independently describe emerging patterns. Then the derived themes, impressions, and patterns were compared and discussed.

Storybook-sharing analyses. Eight of the 16 storybook sharings that took place with O, G, and M were analyzed. (Eight were not analyzed due to: an uninterpretable tape of a child's sign language book; an uninterpretable rendering of a few miscellaneous pictures in one book; and inability to retrieve six books.) Also, one storybook sharing of G's mother with his younger sister (J) was analyzed for comparative purposes. The number of words in stories for the analyzed sharings ranged from 68 [O--Where's Spot? (Hill, 1980)] to 940 [M--The Berenstain Bears and the Truth (Berenstain & Berenstain, 1982)].

First, each transcribed storybook sharing was divided into verbalizations identified primarily through inferred intonation drop (q.v. DeLoache & DeMendoza [1987]; Ninio [1980]; Pellegrini, et al [1990]; Phillips & McNaughton [1990]; Snow & Goldfield [1983]). Exceptions were that an independent clause was always a verbalization, and each independent clause connected to phrases such as "someone said" was considered one verbalization. Intercoder reliability for locating verbalizations was .85.

Second, each verbalization was categorized using the system shown in Table 2 (Bus and van IJendoorn, 1988; DeLoache and De Mendoza, 1987; Ninio, 1980; Pellegrini et al., 1990; Snow and Goldfield, 1982). Each verbalization was coded for who was talking. Then each adult verbalization was coded for whether it was related to the meaning of the text being read, related to reading development, or neither. Breakdowns into subcategories for each of the three superordinate categories are shown in Table 2. All mother-verbalization subcategories of informing, eliciting, and directing were also identified as low-, medium-, or high-mental demand (Pellegrini et al., 1990. The delineation of these subcategories is shown in parentheses in Table 4. Child verbalizations were first coded for function (response, initiation, or neither). Then each verbalization was coded as meaning related, unintelligible, unclear, or other. Subcategory breakdowns for meaning-related verbalizations are shown in Table 2. Intercoder reliabilities were: 1.00 for classification of who was talking; .83 for classification of the function of child's verbalizations; and .72 for classification into all other categories.

Insert Table 2 about here.

Finally, mother's metalinguistic verbs (e.g., *tell* me the story, *say* that again, and please *read*) were identified in the storybook reading transcripts (Pellegrini et al., 1990). Interidentifier reliability across three stories was .86.

The following variables were calculated for mothers (see Table 4) and children (see Table 5) separately, but across story readings within dyad: percent of all verbalizations that were uttered by each speaker and, for each speaker, percent of all the speaker's verbalizations that fell into each of

the categories used for analyses. Also, the number of metalinguistic verbs spoken per minute was calculated for each mother across story readings.

Mother/child language analysis. Tapes and transcripts were reviewed to identify and code communicative acts. Sections of tapes were sampled by starting 15 minutes into each tape and coding 30-minute segments to the end of the tape. (Storybook sharings were excluded.) Ninety minutes were coded for O, 255 for G, and 170 for M.

A communicative act was an individual's talk that continued until the speaker ceased talking, changed the function of communication, or was interrupted by another person. Each communicative act was coded for who was talking, who was being spoken to (the individual, group, or self), and function or purpose.

Adult communicative acts were split into three functions shown in Table 8 (McDonald & Pein, 1982; Olsen-Fulero & Conforti, 1983)--constraining, eliciting, and other. Constraining communicative acts were: directives (e.g., "Do this!"); test questions (e.g., "Is this a spoon?"), repair questions (e.g., "You what?"), attention devices (e.g., "Look at that."), and negative feedback (e.g., "No I won't."). Eliciting communicative acts were: information questions (e.g., "Do you like it?"), verbal/action questions (e.g., "It's moving now?"), and report questions (e.g., "It fits, doesn't it?"). Other communicative acts were: spontaneous declaratives (e.g., "It goes fast."), positive feedback (e.g., "That's right."), permission requests (e.g., "Can I help you?"), and prompts (e.g., "Don't you like that?").

Child communicative acts were categorized as the following functions shown in Table 9 (Wetherby, Cain, Yonclas, & Walker, 1988; Wetherby & Prizant, 1989): behavior regulation (regulating the behavior of another person to obtain a specific result), social interaction (attracting attention to oneself

or maintain another's attention), or joint attention (directing another's attention to an object, event, or topic of a communicative act). Behavior-regulation functions were: request object/action (e.g., "Give me that.") and protest object/action (e.g., "No."). Social-interaction functions were: request social routine/permission (e.g., "Peek-a-boo?"); request comfort (e.g., "Hug me."); call, show off, greet (e.g., "Bye bye."); acknowledgement/answer (e.g., "Yes."). Joint attention functions were: comment on object/action (e.g., "Big doggie.") and request information (e.g., "What's that?").

Intercoder reliabilities between one of the authors and a trained assistant were: .87 for locating communicative acts, 1.00 for coding who was speaking, .93 for coding the targeted person of the communicative act, .82 for adult functions, and .73 for child function.

The following variables were calculated: (a) Conversational parameters (see Table 7) for mother and child talk were: total number of communicative acts per minute (for mother and child separately); number per minute, and percent of, communicative acts to child or to mother, respectively; and ratio of mother's communicative acts directed to the child compared to child's communicative acts directed to the mother (a measure of parental dominance). (b) For each mother (see Table 8), and for each child (see Table 9) separately, two variables were calculated for each of the communicative functions (as well as for the superordinate functions)--number per minute, and percent of, communicative acts to child or to mother, respectively.

Results

Categorical Analysis of Literacy Events and References to Literacy in Transcripts

Following are the major findings from the categorical analysis of literacy events and references to literacy in the transcripts. (Please refer to Table 3 throughout this section.) First, results were amazingly similar across the three children's households. Second, instances of references to literacy and literacy events occurred at a modest level (averaging 5 times per hour of taped observation time--row 1, column 8 of Table 3) and consumed relatively small amounts of time (averaging 10% of the total taped observation time--column 4 of Table 3--or 6 minutes per hour of taped observation time--column 12). Third, nearly all of the literacy-related time was spent reading stories (averaging 7% or 4 minutes per hour of the total taped observation time). Other literacy events and references to literacy were negligible. Fourth, most of the total amount of time was spent on general talk (averaging 55% or 33 minutes per hour of the taped observation time). Fifth, all three children watched a considerable amount of television or videos (averaging 28% or 17 minutes per hour of taped observation time). (Some of this time may have been literacy related (e.g., a phonics skit on "Sesame Street"), but it was impossible from the transcripts to categorize the content of the programs.) We also timed (from the tapes) the amount of time the television was on, regardless of whether anyone seemed to be watching it. For O, G, and M, respectively, the television was on 52%, 77%, and 31% of the total taped observation time.

Insert Table 3 about here.

Theme Analysis

All three children's homes were rich with print-related artifacts, including: printed t-shirts; crayons; paper; pencils; children's books (about 75 to 100 across the three homes); at least one child's magazine in each home;

other artifacts considered "instructional," such as flashcards, alphabet blocks, workbooks (about 4 in O's home), an encyclopedia; and adult newspapers, books, and magazines.

However, in all three homes, there was not much variety in type of literacy interactions with the children. The major type of literacy event involving the children was story sharing (described in detail in a later section). Other literacy events of notable duration were predominantly adult-oriented and were not used to involve the children--for example, G's father read the newspaper and a medical journal, O's mother balanced her checkbook, G's mother worked on tax forms, and M's mother read a flier from M's school.

At times, the observer felt literacy-sharing opportunities were either not exploited or only minimally exploited. For example, during 38 minutes of baking with the three children present and "helping," O's mother overtly used or referred to literacy only twice briefly. As another example, in M's home, after her mother read a flier from M's school, M picked up the flier and handed it to her mother who in turn said "You can get your crayons and color on it."

In O's home, the predominant impression of both the observer and the second analyzer was that O's mother was almost completely overwhelmed by the three children. This may have been a major reason that more literacy interactions did not occur. The environment was hectic, if not chaotic, created largely by the demands of the three young children. O's mother herself sometimes made comments such as, "It's really insane [around here]," "Ooh, girls, I think we're moving into maximum overload here," and "This is mutiny on the Bounty, here, girls!" The observer reported that her experience in O's home felt like being on a raft in rapids--a raft abandoned by the guide

in charge, with O's mother left struggling to keep the raft afloat under the weight of the three young children's demands.

Much of the chaos seemed to be associated with four-year-old E's negative interactions with her sisters and mother. Here is an exemplative excerpt:

Mother: E . . . I'm really unhappy with you. All right? Let's see if we can calm down now. Thank you. Hey, O. Think it's getting time for Mom to wash this floor now?

(E and O making noises and then O cries)

Mother: Uh oh . . . What happened?

E: She bumped her head.

(O still crying)

Mother: And how did she do that? Do you need to be on time out?

E: No.

O: Mommy! (still crying)

Mother: Did you hurt her?

E: No.

Mother: Are you tellin me the truth?

E: Yes.

Mother: I have to believe you because I didn't see.

O: Mommy!

Mother: I'm sorry, honey. I'm sorry. Mmmmm. Okay. You know it hurts. It's not okay to hurt people.

(O still crying)

Mother: . . . I want you to go play in your room for a little while . . . You just go cool out for a little while, okay?

(E cries)

Mother: You don't have a choice . . . It's not time out, but I want you to go to your room for a little while.

E: I don't want to!

Mother: You need to for a little while.

E: I want some cake.

Mother: After you're in your room for about ten minutes and just cool out, and then we'll have some cake out on the porch. Go sit down, all right?

(E lies down in the doorway to her bedroom for a few moments and then returns.)

In G's home, one predominant impression was that his mother was like an intermittent instructor, going about her daily work (such as getting dinner ready), but periodically interjecting something to direct or redirect G's attention. Very often she directed his attention to something educational or instructional. However, her interactions, including the instructional ones, were relatively brief. Some of her attention-directing comments were literacy related (e.g., saying the alphabet along with a "Sesame Street" character or carefully reading a recipe aloud). Here is an exemplative excerpt:

Mother: Who's that? Who's that?

G: Bi Bir.

Mother: That's Big Bird. That's nice.

G: Big Bird.

Mother: Big Bird. Yeah.

G: What's that?

Mother: That. What's it look like? It's a star. Big Bird's looking at the star.. . .

G: Coke.

Mother: Is that coke? Yes it s Coke . . . Still coke. Hasn't changed. It says Coke right there. Coca-cola . . . Coca-cola Classic.

G: Classic.

Mother: Yeah.

G: Coke.

Mother: Coke Classic. Okay. Coca . . .

G: (Unintelligible)

Mother: Coke.

G: Coke. Pepper.

Mother: No. Doctor Pepper . . .

G: Doctor Pepper.

Mother: No. It's not Doctor Pepper . . . It's Coca-cola. See? Coca-cola.

A second predominant impression was that the television was on almost constantly, and though educational programs were often on ("Sesame Street," "Mister Rogers"), it was usually more of a distraction or background noise than a central focus. At no time did either parent actually sit with either of the children to watch and discuss a program or comment at length.

In M's home, the predominant impression was that both parents worked hard at trying to communicate with M. She was the center of their attention throughout both visits. They played with her, seemingly modeling language they wanted her to use, asked her questions, and urged her to try to say words. M's mother (and her father too) was similar to G's mother in that she was also like an instructor, but unlike G's mother, she was constantly devoted to her pupil. Her "instructional" interactions (e.g., watching "Sesame Street" together) with M were often lengthy, sometimes lasting 30 to 60 minutes. Here is one example while M was playing with a doll house:

Mother: Who's outside there? Whoops she fell. (M laughs.)

Mother: . . . Hi there. What ya doin' outside? I'm comin' out to see you. This is real good for fine motor coordination. That's for sure . . . Okay, M . . . Out they go! They going to go driving?

M: Ummmmmm.

Mother: Are they going to go driving and go look at the ducks, are they?

M: Ducks.

Mother: But are they going to go driving and see the ducks?

M: Mmmmmmum. Jucks . . .

Father: Bye. Go bye bye in the garage?

Mother: Why don't you shut the door? Open the door. Open the door.

M: Wot.

Mother: Open . . . open the door by herself.

(M babbles)

Father: She was just doing it a second ago.

Mother: By herself? Without your assistance?

Father: She got it to open up.

M: I!

Mother: Open the door!

Father: No. This one.

Mother: Hey, goo! Zoom! Out they go.

(M laughs.)

Father: Shut the door on them. Oh. You're going to put them all in there.

Mother: Good.

Father: Put all the little people in there.

Storybook Sharing Analysis

Remarkable differences in results across stories within dyads were rare. Where such differences occurred, they are noted in the following section. Otherwise, results are reported for figures collapsed across stories.

First, each dyad's story readings will be characterized. Along with the presentation of G's storybook readings with his mother, a comparison is made to one reading of one of the same stories between G's younger sister, J, and their mother. Then similarities and differences among dyads will be summarized. (Throughout the following section, unless otherwise noted, please refer to Tables 4 and 5.)

Insert Tables 4 and 5 about here.

O and her mother. During O's storybook sharing sessions O's mother was highly interactive and especially nurturing of O's movement to higher cognitive, literacy, and language levels. Though O's mother talked most of the time (84% of all verbalizations), only 34% of her verbalizations were actual text renderings. Further, a great deal of her text rendering was paraphrasing (19%) rather than verbatim reading (15%).

When she was not reading or paraphrasing the text, mainly O's mother was informing (18%) O about something related to the meaning of the text or eliciting (18%) meaning-related information or action from O. Her informative comments were varied in type, covering all five subcategories, ranging from verbalizations relating the story to the real world (1%) to declarations (8%) about the story. Likewise, her types of elicitations were varied, covering seven of the nine subcategories and ranging from asking causal questions (less than 1%) to requesting labels (11%).

Next most frequently, O's mother gave feedback (15%), which was also varied in type, but predominantly consisted of cycles of repeating (8%) a response given by O and then saying "right" or "good" (5%). Least frequently, she made comments not codable into meaningful categories (other, 6%) and directed O (5%) through admonitions to demonstrate (2%) or observe (3%).

O's mother's talk during storybook reading mainly made medium-mental demands (20%) on O, but she also made the most low- (18%) and high-demand (3%) verbalizations of all three mothers (see Table 6). The high-demand verbalizations were spread across four different categories, again suggesting variability in type of interaction.

Insert Table 6 about here.

Finally, O's mother spoke six metalinguistic verbs over nine minutes of storybook sharing, a rate of about one every two minutes.

O herself made about 18% of all the storybook-sharing verbalizations, most of which were characterized as responses (62%), though notably, O did initiate (19%) verbalizations a fair amount. (See Table 5 for figures for all three children's verbalizations.) Interestingly, O's mother's ranging repertoire of kinds of verbalizations was matched by O. Forty-seven percent of O's talk seemed like language play--for example, repeating mother's words and echoing mother. Notably, several of O's verbalizations were spoken directly to characters in the book (9%), perhaps a sign of deep involvement in the text. Also, O's informing verbalizations varied from completing mother's request (2%) to labeling (12%).

G and his mother. G's mother's storybook sharing sessions could also be characterized as interactive, though less so than those for O's mother. G's mother also interacted with G in ways that could be characterized as somewhat

facilitative of cognitive, literacy, and language development. Also like O's mother, though G's mother talked most of the time (78%), only 34% of her verbalizations were actual text renderings. However, in contrast to O's mother, most of G's mother's text renderings were actual text reading.

When she was not rendering text, mainly G's mother was giving feedback (24%) to G. Like O's mother, she heavily used cycles of repeating G's word(s) (10%) and then saying "right" or "good" (11%).

Next most, she elicited (13%) meaning-related information or action from G. Notably, her displayed repertoire of eliciting techniques was more limited than O's mother's; she used only four of the nine subcategories, mostly relying on labeling (9%) and describing (3%), and occasionally asking questions to clarify (less than 1%) and for G to recall parts of a story (less than 1%) from previous readings.

G's mother also interacted with G and the story through informing (8%) verbalizations to some extent, though again, her informing verbalizations were somewhat restricted in type, mainly consisting of labeling (6%), and to a lesser extent, of declarations (2%) and descriptions (1%).

More intrusions (8%) were made into G's storybook sharings with his mother than was the case for O.

G's mother also attempted reading instruction (3%) to a small extent (though the most of all three mothers), for example, asking G what a word was.

G's mother's mental demands were less varied than were O's mother's. G's mother's talk during storybook reading mainly made medium-mental demands (15%) on G, along with some low-mental demands (8%).

Finally, G's mother spoke five metalinguistic verbs over eight minutes of storybook sharing, a rate similar to O's mother of about one every two minutes.

G himself made about 13% of all the storybook-sharing verbalizations, about half of which were responses and about half of which were not codable as responses or initiatives. He verbalized nothing that could be recognized as initiating. Most of G's verbalizations were unintelligible (43%). Next most, he informed (35%) and echoed (17%). Notably, the range of types of his verbalizations seemed to match that of his mother's and both were more restricted than they were in O's dyad.

G's sister, J, with their mother. G's mother repeated a reading of A Zoo in Our House (Eyles, 1988) (done first with G) later with G's younger sister J, providing us with a comparative opportunity. The mother's verbalizations were characterized in the same ways across the two children with the following exceptions: (a) Slightly more of her total verbalizations with J were text renderings (47%). (b) She did less informing (2%) and more reading instruction (12%). (c) Compared to her reading with G, proportionately fewer of her verbalizations with J were feedback (14%), and she gave J more varied kinds of feedback, including negative feedback. Further, her pattern of low, medium, and nigh mental demands was markedly different for J than for G; she verbalized no low mental demands, almost twice the rate of medium demands (28%), as well as some high demands (3%). Finally, her rate of metalinguistic verb use was about three times that of the rate used with G--seven times during four minutes, or about two per minute.

J herself made proportionately about twice the number of verbalizations that G made (25%). Otherwise, her verbalizations were not notably different from G's in character.

M and her mother. M's mother's storybook sharing was not interactive, and did not seem particularly nurturing of M's cognitive, literacy, or language levels. Like the other two mothers, M's mother talked most of the

time (81% of all verbalizations). Unlike the other mothers, she mainly rendered text (67%), most often reading verbatim (55%). This point is especially interesting in that the two stories (the two Berenstain Bears stories) she chose to read to M were by far the longest of the eight that we analyzed.

When not reading the text, M's mother occasionally made informative verbalizations (11%)--either labeling (7%) or declaring (5%)--or she elicited information or action (4%). Her elicitations were somewhat narrow in type--evaluating (2%) labeling (1%), demonstrating (less than 1%), and asking about events (less than 1%).

M's mother spent more time on nonmeaning- and nonreading-related issues (other, 11%), especially on distractions (8%), which were primarily interruptions of the story reading to give medicine.

Feedback (3%), directive verbalizations (1%), and reading-related verbalizations (1%) were minimal.

Most of M's mother's verbalizations were low- (7%) and medium-mental demands (7%), though a few were high (2%). Of the three mothers, she made the fewest cognitive demands on her child.

Finally, M's mother spoke 4 metalinguistic verbs during the 12 analyzed minutes of storybook reading, or about 1 every 3 minutes--a much slower rate than the other mothers.

M herself spoke about 18% of the total verbalizations, the vast majority of which (89%) were not codable as responses or initiatives because they were unintelligible (81%). When her verbalizations were intelligible, they were very restricted in variety--labeling (6%), answering questions (2%), and echoing (2%). Again, M's restricted pattern of verbalization seemed to match her mother's.

Summary of salient points about storybook sharings. Salient points about the storybook sharings are.

(a) The storybook sharings were alike in that all three mothers controlled the story sharing predominantly by text rendering. Also, all three mothers showed at least some variety in kinds of verbalizations. They were also alike in that the amount of child participation was about the same across children.

(b) There were basic differences in how the three mothers shared storybooks with their children, with O's mother using the most interactive style of sharing and using the greatest variety of ways of interacting that seemed conducive to aiding O's cognitive, language, and literacy development. M's mother was the least interactive and used the fewest different ways of interacting. In contrast to O's mother, M's mother seemed less aware of either the level of involvement of her child or of how to engage her child in the story. The differences in styles of interacting were reflected primarily through the following:

Degree of reading/paraphrasing: O's mother paraphrased seemingly to keep O's attention, as a way of involving O at her level of interest. M's mother read verbatim proportionately twice as much as O's mother. G's mother was more like O's mother than M's mother in this regard.

Amount of interaction: O's mother informed, elicited, and directed far more than either other mother (over twice as much, proportionately).

Variety within meaning-related text interruptions: O's mother used more different ways of informing and eliciting

(proportionately approximately twice as many ways) than did either of the other two mothers, who used about the same number of different types of informing and eliciting verbalizations.

Level of mental demand on the child: When compared to the other two mothers, O's mother made proportionately the most demands on her child at all three levels--low, medium, and high.

Amount of feedback: Perhaps because O and G's mothers were more interactive with their children during story reading, and because they more often elicited information and directed their children, there were more opportunities for feedback, and more actual verbalizations of feedback, than for M. G's mother gave the most feedback, almost twice as much as O's mother and more than ten times as much as M's mother, who rarely gave feedback.

Amount of nonmeaning- and nonreading-related intrusions into the story sharing: A moderate proportion of verbalizations in M's story sharing was intrusive--about twice as many intrusive verbalizations as for O or G.

(c) O and G's mothers used metalinguistic verbs about twice as much did M's mother.

(d) There was some evidence of maternal style-of-sharing adjustment. With her younger child, whose chronological age (22 months) was close to G's developmental age, G's mother did more reading instruction and less informing and giving feedback than with G. She also significantly increased her rate of use of metalinguistic

verbs as well as the amount of medium and high demand verbalizations with the younger child.

(e) There were also basic differences in how the three children participated in the story sharing which mirrored differences in the patterns in their mothers' verbalizations. O used a large variety of kinds of verbalizations, even occasionally initiating verbalizations on her own. G and then M in turn used narrower ranges of kinds of verbalizations.

Mother/Child Language Analysis

The three mothers were different from one another with regard to how much they interacted with their children and how domineering they were. O's mother's overall style of conversation with O might be characterized as somewhat easy-going and not particularly assertive or domineering. She talked to her child the least frequently of all three mothers (1.9 acts per minute; 36% of her communicative acts were directed to O), and spoke about two communicative acts for every one of O's (see Table 7). Most of her conversation was talking to O's sister (34%), to all three children (22%), or to herself (4%).

Insert Table 7 about here.

G's mother was slightly more regulating in her conversations. Though she talked to G at about the same rate as O's mother (2.2 acts per minute), more of her talk was directed to G (54%), and she spoke almost three communicative acts for every one of G's (see Table 7).

M's mother was the most talkative and regulating of the three. She talked to her child twice as much as did O's and G's mothers (4.1 acts per

minute), with a large amount of all of her talk directed to M (71%), and spoke almost three communicative acts for every one of M's (see Table 7).

However, the function of the mothers' talk to their children was remarkably similar across the three mothers (see Table 8). Most of the talk for all three mothers was spontaneous declaratives (36, 43, and 37%, for mothers of O, G, and M, respectively) (in the superordinate category, "other," with percentages of 47, 50, and 42, respectively). O and M's mothers were noticeably more constraining than eliciting and comparably so (for mothers of O and M, respectively, for constraining acts, 34 and 33%, respectively, and for eliciting acts, 19 and 25%). G's mother was about equally constraining (25%) and eliciting (24%).

Insert Table 8 about here.

Constraining acts were most often directives (20, 13, and 18% for mothers of O, G, and M, respectively). Notably, O's mother's remaining constraining remarks were fairly evenly distributed over the other function types (from 3 to 5%), whereas most of G's mother's and M's mother's remaining constraining acts were test questions (11% for each).

Eliciting acts were most often information questions (for mothers of O, G, and M, respectively, 19, 24, 25%).

The differences in intensity of talk between the three mothers described above were also reflected in the number of communicative acts per minute within each of the function categories in Table 8. For example, M's mother's rate of constraining was about twice that of the other two mothers' (.71, .56, and 1.36 per minute, for mothers of O, G, and M, respectively); her rate of eliciting was two to three times that of the other two mothers (.36, .52, and 1.03 per minute for mothers of O, G, and M, respectively).

The three children were remarkably similar in frequency of talk and in amount of their own talk that was directed towards their mothers. Each spoke a communicative act to his/her mother about once a minute (for O, G, and M, respectively, 1.0, .8, and 1.4), with slightly more than half of their acts directed to their mothers (58, 61, and 63%, respectively) (see Table 7).

The children's functions of their communicative acts (directed towards their mothers) were also highly similar. Mainly, they commented on an object or action (for O, G, and M, respectively, 49, 54, and 69%) (within the superordinate category, "joint attention," with 51, 62, and 70%, respectively) (see Table 9). Next most, they spoke for the purpose of social interaction (36, 34, and 25%, for O, G, and M, respectively), primarily to acknowledge another communicative act (21, 18, and 24%, respectively). (G also frequently called, showed off, or greeted his mother [18%].) O's social-interaction communicative acts were perhaps more varied than the other two children's (ranging from 3 to 8% for the remaining three social-interaction categories, versus G's 15% for one other and less than 1% for two others, and M's less than 1% in the three others).

Insert Table 9 about here.

Behavior regulation was slightly more prevalent in O's (13%) communicative acts than in the other two children's (5 and 6% for G and M, respectively).

The similarities in intensity of talk described above for the three children were also reflected in the number of communicative acts per minute for each function category in Table 9. Rates were extremely similar across children with the exception of the joint attention category, where M commented

on an object or action at about twice (.98 per minute) the rate of O (.50) or G (.40).

Conclusions and Discussion

The conclusions and the following discussion should be interpreted in light of limitations of the study, each of which relates to generalizability of findings. First, parents who choose to send their children to a university-affiliated daycare center may be different in unknown ways from other parents at large. Second, our children were (by necessity) not randomly selected, and we were in their homes a very limited amount of time. Third, the three children in our study were in families with at least one parent holding a college degree. The extent to which our findings might be typical of families with lesser amounts of education is not known.

The main conclusions of the study were: (a) Though the homes of the preschoolers with Down Syndrome were print-rich, and literacy references and events did occur, they happened at a modest level. (b) Variety in types of literacy activity was negligible; nearly all of the literacy-event time was spent reading stories to the children. Missed opportunities for literacy interactions were noteworthy. (c) A predominant theme in the various analyses was that each mother's style of literacy and language interaction with her child could be characterized as fitting a point on a mother-as-teacher continuum. One mother's views seemed to be aligned with what might be termed "teacher as social negotiator," a view in which child and parent learn and make meaning together. The other two mothers' behaviors (one to a greater extent than the other) were more consistent with an opposing view--"teacher as regulator and knowledge giver." (d) The mothers' apparently variant views of teaching were reflected in two very different maternal styles of story sharing--a highly interactive one, similar to one previously shown to be

conducive to cognitive, language, and literacy development, and a non-interactive one, a style less likely to enhance thought, language, or literacy development. (e) The mothers' style of language interaction with their children was not notably facilitative of language development. There was a tendency for the mothers to be more constraining than eliciting. However, consistent with the notion of different maternal views on teaching, the mothers varied in the degree to which they regulated conversation, with one mother's communication with her child being characterized as particularly regulatory when compared to the other two. (f) Some very limited evidence (from story sharing situations) supported the possibility that at least one mother had lower expectations for literacy learning for her child with Down Syndrome than for her younger daughter whose chronological age was about the same as the developmental age of the child with Down Syndrome.

One way to interpret the amount and kind of literacy references and events found in the homes of the three children with Down Syndrome is to compare the findings to results of prior studies with similar-aged nondisabled children. Figures given in two reports of studies of 24 nondisabled two- and three-year olds (Anderson & Stokes, 1984; Teale, 1986) allow such comparison. (Numbers of hours of home observation per focal child ranged from 14 to 142 and averaged 91.) First, though more literacy events occurred per hour in our study (2.15) compared to findings in the prior work (.71), virtually all of our literacy events were storybook sharings, whereas a wider variety of events was reported in the other work. The difference is likely attributable to the fact that all of our observations occurred during the late afternoon and evening when story reading would be more likely, but observations in the other studies were done at all times of the day.

Second, familial involvement in non-story-reading literacy events was far more varied in the prior work with nondisabled children. We needed to use only four of the eight non-story-reading literacy event categories that Anderson and Stokes (1984) and Teale (1986) needed.

Third, our families spent about half as much time as families of nondisabled children on literacy events (averaging 4.65 minutes per hour compared to 7.50 in the previous work). The comparatively small amount of time spent on literacy events is surprising in light of the fact that our observations occurred during hours when literacy events (newspaper reading, cooking, etc.) might be most likely to occur. It might be best explained as lack of time spent on non-story-reading literacy events. In the prior studies, an average of less than one minute per hour was spent on story reading; in our study, about four minutes per hour were spent. In other words, the parents of nondisabled children spent much more time on non-story-reading literacy events (and less time on story reading) than did our parents.

Fourth, in prior work (e.g., Teale, 1986), most literacy events were embedded in everyday social occasions, but in the homes of our children with disabilities, they tended to be treated as "special," somewhat isolated occasions, separated from everyday occurrences.

We might conjecture about the reasons for the comparatively less frequent occurrence of various literacy interactions in the homes of the three children with Down Syndrome. Findings from the theme analysis suggested that, in at least one home (O's), amount of literacy interactions may have been limited because of the overwhelming difficulties of tending to the demands of three young children. A tremendous amount of energy and attention had to be devoted to establishing order and "keeping peace," so much so that taking advantage of literacy opportunities fell by the wayside.

In the other homes, the comparatively less frequent occurrence of non-story-sharing literacy events might be attributed to mother's lack of understanding of some of the principles of emergent literacy, of the links between language and literacy development, and/or of ways to facilitate literacy and language development. Another possibility is that the mothers knew about principles of emergent literacy and about various facilitative avenues, but had somewhat low expectations for literacy possibilities for their children with Down Syndrome. The latter possibility is supported by the more "advanced" expectations evident in G's mother's style of story sharing with G's younger sister than with G.

Television viewing may also have displaced non-story-sharing literacy events in our study. On average, nearly one-third of the children's taped observation time was spent watching television. However, our children, on average, watched less television (about one-to-two hours daily) than two- to five-year olds in general (the average is a little over four hours daily [Ibrahim, 1987]). Further, research on the relationship between children's television viewing and literacy development tends to indicate that moderate levels of viewing do not affect reading achievement adversely and may even benefit learners in background knowledge, interest, and vocabulary (Reinking & Wu, 1990).

The predominant impression of the mothers as "teachers" is highly consistent with findings from studies of mother-child interactions in homes of children who are mentally retarded (Stoneman, Brody, & Abbot, 1983). However, O's mother's apparent "teacher-as-social-negotiator" view seems rare in studies of children with disabilities. More frequently encountered is the "teacher-as-regulator-and-knowledge-giver" view. In general mothers of children who are retarded have been characterized as "manager-teachers,"

frequently asking teaching questions (Stoneman, Brody, & Abbott, 1983, p. 591). With regard to literacy development, the "teacher-as-social-negotiator" view is certainly more consistent with current views of reading (q.v. Rumelhart, 1985) and writing (q.v. Nystrand, 1989) and particularly with findings from research on emergent literacy.

Several points may be made about the results of the storybook sharings, with the points focused around the question of how the storybook sharings were similar and dissimilar to those reported in prior research with nondisabled children. First, the variability in styles of sharing among the mothers in our study was similar to prior findings of differences among mothers at large (Sulzby & Teale, 1991).

Second, two of our mothers' styles of storybook sharing were highly similar to styles previously associated with sensitivity to literacy level (Bus & van IJzendoorn, 1988) and thought to be more conducive to child's productive vocabulary development (Sulzby & Teale, 1991) as well as oral language acquisition and literacy learning (Sulzby & Teale, 1991). O's mother in particular, and G's mother to a somewhat lesser extent, exhibited highly interactive sharing styles and made considerable medium- and high-mental demands on their children. Their styles were much like descriptions of mothers of nondisabled children 12-, 15-, and 18-months old (DeLoache & DeMendoza, 1987), more competent and participatory children 17- to 22-months old (Ninio, 1980), and 3-year olds (Bus & van IJzendoorn, 1988; mainstream families in Heath, 1982; Sulzby & Teale, 1991). Their interactions suggested they had the goal of involving their children in the book at the highest level possible, seemingly applying Vygotsky's (1978) notion of locating a zone of proximal development and facilitating further cognitive growth. Further, as in previous reports of interactive story sharing with mothers of nondisabled

3-year olds (Bus & van IJzendoorn, 1988; Phillips & McNaughton, 1990), O and G's mothers emphasized text-meaning creation.

On the other hand, M's mother's noninteractive story-reading style was more like aspects of that reported previously for mothers of nondisabled 5-year olds (Bus & van IJzendoorn, 1988), low-socioeconomic status black mothers of 3- to 5-year old Head Start children (Pellegrini et al., 1990), and mainstream children after the age of 3 (Heath, 1982). The style may be more appropriate with older, more linguistically capable, children who can better sustain the required attention and bear more cognitive burdens than younger, less linguistically-capable children. Viewed in this way, the style may reflect a maternal belief that the child is quite mature with regard to attention and cognitive functioning. It may also reflect one or both of two somewhat less-optimistic possibilities. Mothers may read continuously to their children when they feel their children are not capable of participating very much in the story reading. That is, they may not recognize the potentials for "luring" children into the task, gradually "upping the ante" (Teale, 1981; Wertsch, in press). Or they may not consider reading to be a socially-negotiated process--one in which meanings are created through the interactions of readers and authors. We could not discern from our data which of these beliefs M's mother held.

Third, like one prior report (Phillips and McNaughton, 1990) and unlike another (Bus & van IJzendoorn, 1988), our story-sharing episodes did not contain much reading instruction and/or child protoreading. Bus and van IJzendoorn (1988) reported about one instance of reading instruction and one of protoreading every five minutes for 3-year olds sharing a storybook--figures far higher than we found. Our lower incidence of reading instruction

and protoreading may be related to our children's cognitive delays of about one year and of mothers' sensitivity to those delays.

With regard to the mothers' style of language interaction with their children, several points can be made. First, our mothers' tendency towards more constraining interactions did not appear to be unusual for mothers of children with disabilities in general (Breiner & Forehand, 1982; Mahoney, Finger & Powell, 1985; Mahoney & Powell, 1988). Second, constraining interactions have previously been shown, in studies with children with no disabilities, to be negatively related to features of child language development (Hoff-Ginsberg, 1986; McDonald & Pein, 1982; Rocissano & Yatchmink, 1983; Tomasello & Farrar, 1986; Yoder & Kaiser, 1989). Third, however, the potential *utilities* of maternal conversational constraint with children with handicaps have recently been explored (Marfo, 1990). It is possible that constraint is facilitative under certain circumstances. For example, with nonresponsive children, constraining conversation may be the only type mothers can employ, which is better than limited conversation (Dunst, 1985; Goldberg, 1977). Children with disabilities *are* less responsive to their parents than children with no disabilities (Stoneman et al., 1983). Our mothers' styles may have been shaped by their perceptions of their children's responsiveness. Still, the causal nature of the relationships between maternal style of language interaction and child responsiveness has never been demonstrated empirically. It is equally possible that children with disabilities are less responsive to their mothers because their mothers are more constraining. Fourth, our mother's style of language interaction with their children was not highly likely to build foundations for literacy development.

Finally, on the whole, the findings suggested that all three mothers of the children with Down Syndrome valued literacy--they used it themselves, the home environment was print rich, and they seemed to believe story sharing was something they "should do." However, some of the findings (especially when compared to more general findings from studies with similar-aged nondisabled children) were less positive. In particular, the controlling, regulatory style of language and literacy interaction has been shown to be negatively related to children's language development and is not likely to facilitate some aspects of literacy learning.

It is possible that mother-child interactions might be enhanced by intervention with four goals for learning about: (a) how to take advantage of the myriad of everyday literacy opportunities to initiate children into literacy (all three mothers in the present study might profit from discussion of this goal); (b) current social-interactive views of reading and writing; (c) alternative styles of story sharing and how features of an interactive style are related to current and later literacy and language learning; and (d) alternative styles of language interaction with their children and about what mother language behaviors are most facilitative of children's language development. A limited amount of similar intervention work with families of nondisabled children has previously been effective (Edwards, in press; Heath with Thomas, 1984; Katims, 1990).

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Table 1
Literacy and Other Categories Used in Analysis of Transcripts

Category	Example
References to literacy	
Literacy artifacts	"The catalog we got for you"
Literacy event	"Remember when we went to the library last week?"
General	"You don't necessarily learn to read until you're nine or ten"
Literacy event[a]	
General information	Newspaper reading
Daily living	Literacy events that occur during daily living such as cooking
Entertainment	Literacy events that occur during or for entertainment, such as reading a TV guide
Technique	Literacy events for teaching reading
Storybook time	
General talk	
Watching TV/video	
Other	Doing rhymes, singing, matching cards, drawing, and doing puzzles

[a]Subcategories of literacy events are from Anderson and Stokes (1984) and Teale (1986).

Table 2
Story-sharing Categories

Who's Talking (e.g., Mother or Child)	
Adult	
Category	Example
Meaning-related	
Text renderings	
Reading	
Paraphrasing	
Orienting (preparation for text sharing)	
Informing	
Labeling	("There's a ball.")
Describing	("It's real big.")
Declaring	("Here comes the sun.")
Evaluating/Reacting/ Speculating	("He's acting funny!")
Relating to the real world	("Spot looks like our dog.")
Eliciting	
Demonstrating	("Will you look under the flap again?")
Labeling	("What's that?" "Where's the bird?")
Describing	("What color is it?")
Clarifying	("What do you mean?")
Event	("What's happening?")
Recalling the Story	("Do you remember what happens next?")
Why	("How come he went up the tree?")
Evaluating/Reacting/ Predicting	("What do you think will happen next?")
Relating to the real World	("Do you like snow?")
Directing	
Demonstrating	("Open the flap.")
Observing	("Look!")
Reproducing	("Say it like me.")
Feedback	
Positive	
Paraphrasing or extending the child's words	
Repeating the child's words	
Saying "right" or "good"	
Other	
Informative	(mother corrects incorrect response)
Negative	
Reading-related	

	Reading Instruction	(explanations, questions, comments relating to the formalities of reading)
	Other	
Neither		
	Disciplining	
	Distracting	(intrusions into the book sharing such as getting medicine)
	Other	

Child

Function		
	Response	
	Initiation	
	Neither or can't tell	
Meaning related		
	Informing	
	Labelling	("Spot.")
	Declaring	(Mother says, "Look, he found another one." Child says, "No.")
	Completing mother's sentence	
	Right	(Mother says, "Says the bear eating the . . .: Child says, "Honey.")
	Wrong	
	Answering mother's question	
	Right	
	Wrong	
	Completing mother's request	
	Right	
	Wrong	
	Other	
	Repeating mother's correction of child's error	
	Echoing mother	
	Talking to book or character in the book	
Unintelligible		
Unclear		(Intelligible, but can't discern meaning/intention from the context)
Other		

Table 3
Percent of Total Taped Observation Time, Number of Occurrences, and Minutes Per Hour of Total Observation for Each Category

	% of total taped observation time[a]				No. of occurrences per hour of taped observation time				No. of minutes per hour of taped observation time			
	O	G	M	M	O	G	M	M	O	G	M	M
(Literacy Total)	(9.23)	(10.35)	(10.20)	(9.93)	(5.86)	(3.56)	(6.63)	(5.35)	(5.55)	(6.21)	(6.12)	(5.96)
Reference to Literacy												
Artifact	.54	1.76	.57	.96	1.30	.92	2.55	1.59	.33	1.06	.34	.58
Event	1.09	.88	1.13	1.03	1.63	1.06	1.70	1.46	.65	.53	.68	.62
General	.54			.18	.33	.13		.15	.33			.11
Literacy Event												
Total	7.06	7.71	8.50	7.76	2.61	1.45	2.38	2.15	4.24	4.62	5.10	4.65
General information			1.13	.38			1.02	.34			.68	.23
Daily living	.54	.22		.25	.98	.13	.17	.43	.33	.13		.15
Entertainment						.13	.17	.10				
Technique		.66		.22		.13		.04		.40		.13
Storybook	6.52	6.83	7.37	6.91	1.63	1.06	1.02	1.24	3.91	4.10	4.42	4.14
General Talk	55.98	55.51	52.97	54.82	11.73	4.62	6.46	7.60	33.55	33.29	31.80	32.88
Watching TV/Video	30.98	29.30	23.51	27.93	2.28	2.11	1.36	1.92	18.57	17.57	14.12	16.75
Other	3.80	3.52	11.90	6.41	3.59	.78	2.04	2.14	2.29	2.11	7.14	3.87

[a]Columns do not all sum to 100% because of rounding in category calculations.

Table 4
Mother's Percent of all Verbalizations and Percent of Verbalizations by Category for Storybook Sharings

	Mother of			
	O	G	M	J
% of all talk	**84.51**	**77.97**	**80.52**	**72.50**
Meaning related				
Text rendering	**33.59**	**33.58**	**67.44**	**46.55**
Reading	14.50	24.82	55.35	36.21
Paraphrasing	19.08	8.76	12.09	17.24
Orienting	**3.82**	**9.49**	**1.40**	**5.17**
Informing	**17.94**	**8.03**	**11.16**	**1.72**
Labeling (L)	6.49	5.84	6.51	.00
Describing (L)	3.05	.73	.00	.00
Declaring (M)	7.63	1.46	4.65	1.72
Evaluating (H)	.00	.00	.00	.00
Real world (H)	.76	.00	.00	.00
Eliciting	**17.94**	**13.14**	**4.19**	**15.52**
Demonstrating (L)	2.67	.00	.47	.00
Labeling (M)	11.07	8.76	1.40	1.72
Describing (M)	.00	2.92	.00	.00
Clarifying (M)	.76	.73	.47	7.90
Event (M)	.76	.73	.00	8.62
Recalling Story (M)	.00	.73	.00	.00
Why (H)	.38	.00	.00	.00
Evaluating (H)	1.53	.00	1.86	1.72
Real World (H)	.76	.00	.00	.00
Directing	**.00**	**.73**	**.93**	**.00**
Demonstrating (L)	1.91	.73	.00	.00
Observing (L)	3.44	.00	.47	.00
Reproducing (M)	.00	.00	.47	.00

Feedback	**14.50**	**24.09**	**2.79**	**13.79**
Positive				
Paraphrasing	.38	.00	.00	1.78
Repeating	7.63	10.22	.47	5.17
Right	4.58	10.95	.93	3.45
Other	1.53	.00	.00	.00
Informative	.38	2.19	1.40	1.78
Negative	.00	.73	.00	1.78
Reading Related	**1.15**	**2.92**	**.93**	**12.07**
Reading instruction	.38	2.92	.93	12.07
Other	.76	.00	.00	.00
Neither	**5.73**	**8.03**	**11.16**	**5.17**
Disciplining	.00	2.92	.00	.00
Distracting	1.53	3.65	7.91	.00
Other	4.20	1.46	3.26	5.17

Note. L = low mental demand; M = medium; and H = high. Total N verbalizations for O's mother = 262, for G's mother with G = 137, for M's mother = 215, and for G's mother with J = 58. Also, totals across categories do not always equalize because of rounding of the category level.

Table 5
Child's Percent of all Verbalizations and Percent of Child Verbalizations by Category for Storybook Sharings

	O	G	M	J
% of all talk	**18.00**	**12.92**	**17.60**	**25.00**
Function				
Response	62.07	52.17	8.51	60.00
Initiation	18.97	.00	2.13	.00
Other	18.97	47.83	89.36	40.00
Meaning related				
Informing	**37.75**	**34.78**	**8.51**	**45.00**
Labeling	12.07	.00	6.38	.00
Declaring	3.45	.00	.00	.00
Completing				
Sentence Right	1.72	17.39	.00	10.00
Sentence Wrong	1.72	.00	.00	10.00
Answering				
Question Right	8.62	13.04	2.13	15.00
Question Wrong	8.45	4.35	.00	10.00
Completing				
Request Right	1.72	.00	.00	.00
Other	**46.55**	**17.39**	**2.13**	**15.00**
Requesting	1.72	.00	.00	.00
Echoing	36.21	17.39	2.13	15.00
Talk to book	8.62	.00	.00	.00
Unintelligible	**15.52**	**43.48**	**80.85**	**35.00**
Unclear	**3.45**	**4.35**	**8.51**	**.00**
Other	**1.72**	**.00**	**.00**	**5.00**

Note. Total N verbalizations for O = 58, for G = 23, for M = 47, and for J = 20.

Table 6
Percent of Mother's Verbalizations That Were Low, Medium, and High Mental Demand

Demand	O	G	M	J
Low	17.56	7.30	7.44	.00
Medium	20.23	14.60	6.98	27.59
High	3.44	.00	1.86	3.45

Table 7
Conversational Parameters for Mother's and Child's Talk

	O	G	M
Mother			
Number of communicative acts to child/minute	1.9	2.2	4.1
Percent of all communicative acts that were directed to child	35.8	54.4	70.9
Ratio of mother's communicative acts to child/ child's communicative acts to mother	1.9	2.8	2.9
Child			
Number of communicative acts to mother/minute	1.0	0.8	1.4
Percent of all communicative acts that were directed to mother	58.6	60.5	62.9

Note. Total number of communicative acts for O's, G's and M's mothers were 486, 1012, and 993, respectively; total number for O, G, and M were 157, 324, and 383, respectively. Total number of communicative acts for mothers to O, G, and M, respectively were: 174, 551, and 704; Total number of communicative acts for O, G, and M to their mother respectively were 92, 196, and 241.

Table 8
Mother's Number Per Minute and Percent of Communicative Acts to Child by Function for Language Analysis

Communicative function	Mother of O		Mother of G		Mother of M	
	No./min.	%	No./min.	%	No./min.	%
Constraining	0.67	34.0	0.56	25.3	1.36	32.9
Directives	0.38	19	0.29	13.2	0.75	18.0
Test questions	0.07	3.4	0.24	10.8	0.49	11.7
Repair questions	0.07	3.4	0.00	0.2	0.04	1.0
Attention devices	0.06	2.9	0.02	0.7	0.02	0.6
Negative feedbacks	0.09	4.6	0.01	0.4	0.06	1.6
Eliciting	0.36	19.2	0.52	24.1	1.03	24.9
Information questions	0.33	17.2	0.50	23.0	0.98	23.6
Verbal/action questions	0.02	1.4	0.02	0.9	0.00	0.0
Report questions	0.01	0.6	0.00	0.2	0.05	1.3
Other	0.91	47.1	1.09	50.4	1.73	42.1
Spontaneous declaratives	0.7	36.2	0.93	42.8	1.6	37.6
Positive feedbacks	0.13	6.9	0.09	4.0	0.14	3.4
Permission requests	0.00	0.0	0.0	0.2	0.00	0.1
Prompts	0.08	4.0	0.07	3.4	0.04	1.0

Table 9
Child's Number per Minute and Percent of Communicative Acts to Mother by Function for Language Analysis

Communication function	O		G		M	
	No./min.	%	No./min.	%	No./min.	%
Behavior regulation	0.14	13.0	0.04	4.6	0.09	5.8
Request object/action	0.07	6.5	0.02	2.0	0.01	0.4
Protest object/action	0.07	6.5	0.02	2.6	0.08	5.4
Social interaction	0.36	35.9	0.26	33.7	0.35	24.4
Request social routine/ permission	0.04	4.3	0.00	0.5	0.00	0.0
Request comfort	0.03	3.3	0.00	0.0	0.01	0.4
Call, show off, greet	0.08	7.6	0.12	15.3	0.00	0.0
Acknowledgement/answer	0.21	20.7	0.14	17.9	0.34	24.1
Joint attention	0.52	51.1	0.52	61.6	1.00	70.1
Comment on object/action	0.50	48.9	0.42	54.0	0.98	68.9
Request information	0.02	2.2	0.10	7.6	0.02	1.2