

# Improving 5-Year-Olds' Narrative Recall and Comprehension

ROBERT J. BECK AND K. ALISON CLARKE-STEWART  
*University of California, Irvine*

After viewing a brief segment from a dramatic movie and discussing it with an adult, 66 5-year-old children retold the story they had seen. Their stories contained more advanced narrative features—problem complications, interpersonal conflicts, internal states, and moral issues—than would be expected of children this age based on the available research literature and than were included in the stories of a comparison group of 14 children who did not discuss the movie with an adult. Children who discussed the movie with an experimenter following a structured “pedagogical protocol” told more complex and detailed stories than those who discussed the movie informally with their mothers. The pedagogical protocol consisted of a set of questions that focused the child’s attention on critical facts and feelings in the movie from beginning to end and corrections given in response to the child’s misunderstandings. When children discussed the movie with their mothers, those whose mothers spontaneously used more questions and corrections like the ones in the pedagogical protocol exhibited significantly better recall of objective actions and higher levels of narrative comprehension than those whose mothers used fewer questions and did not correct the children’s misunderstandings.

Over the past 20 years, considerable progress has been made in identifying increasing levels of narrative competence in preschool-age children. Narrative development begins, at about 3 years of age, with the ability to tell action-sequence stories (Stein & Policastro, 1984). This is followed, at approximately 4 years, with the ability to tell stories containing a series of causally interrelated actions (Stein & Glenn, 1979; Trabasso, Stein, Rodkin, Munger, & Baughn, 1992). By age 5, children can use causal structures to infer and sequence the goal plans of protagonists in stories with relatively simple themes (Mandler & Johnson, 1977; Trabasso et al., 1992; van den Broek, Lorch, & Thurlow, 1996; van den Broek, 1997). This was demonstrated in a study by Trabasso et al. (1992), in which the stories of 5-year-olds who narrated a series of pictures, frame-by-frame, were more likely to be causally structured and guided by a goal plan and included more action episodes related

---

Direct all correspondence to: Robert J. Beck, University of California, School of Social Ecology, Irvine CA 92697 <RBECK@UCLEDU>.

---

**Journal of Applied Developmental Psychology** 19(4): 543-569 Copyright © 1998 by Ablex Publishing Corp.  
ISSN: 0193-3973 All rights of reproduction in any form reserved.

---

to the goal plan than younger children's stories. In research by Stein (1988), in which children made up stories in response to verbal prompts, such as "Tell me a story about a fox in the forest..." half of the 5-year-old subjects told goal-directed stories. Similarly, in a study by McCabe and Peterson (1984), in which children produced narratives based on their personal experiences, 5-year-olds incorporated goal-directed episodes in 42% of their narratives, whereas 4-year-olds did so only 13% of the time. These studies clearly indicate that 5-year-old children have acquired the competency to include in their narratives goals and actions on the main theme or "causal chain" of a simple story.

### **Limited Narrative Competence of 5-year-olds**

The narrative abilities of 5-year-olds are still limited, however, in a number of significant ways. One limitation is that 5-year-olds include in their stories little about characters' internal states. Bruner (1986) referred to the development of an appreciation of characters' internal states as achievement of the "dual landscape," that is, the representations of characters' subjective states, such as intentions, feelings, and motives, as they are causally interrelated to the objective sequence of events. Research using creative stories suggests that achievement of the "dual landscape" does not occur until children are 6 years or older (Applebee, 1978; Botvin & Sutton-Smith, 1977; van den Broek, 1997). Hudson and Shapiro (1991) reported that even when children were in third grade most of their stories still lacked explicit reference to internal states, goals, and reactions.

However, it may be that although 5-year-old children do not normally include subjective states in their stories, they would be able to encode and recall them if prompted. Research on children's developing theory of mind and emotional understanding indicates that when they are asked specific questions about others' internal states, 5-year-olds can answer accurately. They can use the emotion terms "happy," "sad," and "mad" appropriately and can predict when someone will be surprised, upset, saddened, or angered; they can infer that a story protagonist feels happy or surprised (Saarni, Mumme, & Campos, 1998). They are aware of others' beliefs and desires and can reason about them (Repacholi & Gopnik, 1997). Goldberg-Reitman (1992), using a set of cartoon pictures reflecting real-life social interactions (a little girl is sleeping in bed; a fire starts in her room; the little girl coughs and cries out), found that when children were asked by an adult about actions, thoughts, and feelings at each stage of the story, 6-year-olds but not 4-year-olds mentioned the child's fear and desire for the mother, the mother's desire to save the child, and the happiness of mother and child after the child is saved. Unfortunately, her study did not include 5-year-olds.

A second way in which the stories of 5-year-olds are limited is that they do not contain problem complications. McKeough (1992), in a study of creative stories using the stem of a "happy little girl, a kind old horse, and a cute little lamb," found that 4-year-olds told stories that consisted only of simple action sequences following a stereotyped script. At age 6, children's stories included a problem and a resolution. But not until age 8 did children include a problem, a complication, and a resolution. In Stein's (1988) study of creative stories, too, only 11% of the kindergarten children included an obstacle in their stories; there were no stories in which antagonists presented competing obstacles by dint of their own goal-directed actions. Similarly, Botvin and Sutton-Smith (1977) found that 5-year-old children knew that action may be organized around a dyadic structure that includes conflict

but not until 6 years of age did they begin to elaborate and expand narratives of this dyadic type to include a number of episodes between an initial state (e.g., a character lacking something) and a final state (lack fulfilled.)

A third limitation in the narratives of 5-year-olds is that they lack an evaluative element. Based on analyses of narratives of personal experience, Labov and Waletzky (1967) identified a narrative structure that they termed the "high point" or evaluative dimension of the story. McCabe and Peterson (1991) found that, by Labov and Waletzky's criteria, good narratives were not produced until 6 years of age, when children provided their listeners with orientation as to who, what, where, and when something happened and gave complicating action building to a climactic event that was evaluated in some way. It is in the high point, potentially, that the conflict between the characters is fully played out and the narrator may evaluate their actions (Hudson & Shapiro, 1991). This evaluation is theorized to mature in later childhood (10-13 years) into a moral perspective (Kernan, 1977).

There is little information available about 5-year-old children's ability to use another narrative element in their stories: embedded or subordinate plots. Botvin and Sutton-Smith (1977) and Applebee (1978) observed that children did not use subordinate plots in their creative stories until at least 7 years of age. Trabasso et al. (1992) pointed out, however, that when storytelling tasks are more constrained, such as by providing an opening and setting statements, 5-year-olds can create stories with embedded plots.

In brief, then, previous research suggests that 5-year-old children lack the ability to tell stories from multiple points of view: within characters (states of consciousness), between characters (conflicts), and from the narrator's evaluative perspective (moral judgments of characters' actions). The question that motivated the present study was whether the limitations observed in 5-year-old children's narrative performance—their lack of characters' internal states, problem complications, moral evaluations, and possibly subplots—could be overcome. Two techniques were used to explore the possibility that 5-year-olds' storytelling could be improved: (a) children were asked to tell the story presented in a vivid and memorable dramatic movie, and (b) adult discussion was used to "prepare" the children for telling the story.

### **Movie Story Presentation**

A primary methodological issue in storytelling research is the choice of narrative genre. Most commonly, researchers have used children's creative or personal stories as their data source. Recently, however, researchers have argued for the superiority of the story *retelling* method (Trabasso et al., 1992; van den Broek et al., 1996). The retelling genre offers a precise baseline against which to measure recall and comprehension: a story stimulus is presented at Time 1 and elicited at Time 2. In narratives of personal experience or creative stories, there is no Time 1; that is, there is no story until it is told. Moreover, the themes in these unstructured stories, a factor that has been found to influence productivity (Hudson & Shapiro, 1991), vary as widely as the experiences and imaginations of the tellers.

Most researchers using story retelling as their method of studying children's narrative development have used text (literary) stories, which, for young children are read aloud or played from audiotape. An alternative is to use a televised or movie story. Retelling an audiovisual story, van den Broek et al. (1996) argue, requires the narrator to process the



same narrative structures as have been found in retelling text, audio, and cartoon-strip stories.

Audiovisual presentations, however, differ from these other presentations in a number of ways that might lead to higher levels of narrative expression. One difference is that a video or movie story is more likely to be enjoyed by children (Hall, 1995) and therefore hold their attention. A second difference is that an audiovisual story offers more redundant information than a text or audio-only story. Watching a movie, children can momentarily lose attention, but, because of redundant audio and visual information, still get the gist of the story. In an audio-only story, inattention to an important detail might prove detrimental to understanding the story as a whole as well as to later recall of the detail. By the time children are 5 years of age, Lorch and colleagues (Lorch, Anderson, & Levin, 1979; Landau, Lorch, & Milich, 1992) argue, they have developed a sophisticated strategy of television viewing that allows them to distribute their attention between the screen and other activities, keeping an ear on the program even when they are not watching it.

A third difference between text or audio stories and audiovisual stories is that audiovisual presentations expose the viewer to two sensory modes of information, which, according to the dual code theory of information processing (Baddeley, 1986; Paivio, 1991), should have additive effects on memory. This theory has received support from a number of empirical investigations. Frick (1984) demonstrated that providing both visual and auditory channels of information resulted in increased memory even in a simple task like memorizing numbers (digit span). Thompson and Paivio (1994) found that subjects recalled picture-sound items better than either pictures or sounds presented alone. Sharp et al. (1995) discovered that presenting a video at the beginning of a story provided a framework for kindergarten children to understand and remember linguistic information from the story. Beentjes and van der Voort (1993) and Walma van der Molen and van der Voort (1997) found that children recalled more information from an audiovisual presentation than from print. Thus, there is evidence to suggest that children's ability to remember and retell a story will be more advanced if the story is presented audiovisually.

A fourth difference between text and audiovisual stories is that the latter may contain more obvious emotional content, and a dramatic movie that presents vivid expressions of emotions and conflicts is more likely to be remembered than a relatively unemotional, text-based story. Cahill and McGaugh (1995), for example, demonstrated that adults recalled more slides when they were accompanied by emotionally arousing narration than when they were accompanied by unemotional narration, particularly slides from heightened emotional phases of the story sequence.

For all these reasons, we expected that asking children to retell a movie story would lead to higher levels of narrative recall than have been reported in previous research using other types of story presentations or narrative tasks.

### **Adult Discussion**

The second way in which the limitations of 5-year-olds' storytelling ability might be overcome is by having an adult "prepare" them to retell a story. The effects of adult discourse on children's narrative and language ability have been demonstrated in a number of different lines of research.

In one line of research, researchers examined the narratives produced by children when they discussed events with their parents. Fivush and Fromhoff (1988) observed that 2½-year-old children whose mothers asked them more memory questions and elaborative questions and provided them with more information included more in their narratives of personal experience than the children of mothers who were not so talkative. Pratt, Kerig, Cowan, and Cowan (1988) found that the 3-year-old children who provided the most advanced narratives when retelling a fictional story were those whose parents asked them more specific information questions, such as "What was the dog doing?" "Was the bike broken?" rather than asking general open-ended questions, such as "Tell me your story," or yes/no questions.

A second line of research involves having an experimenter discuss a story with the child. Trabasso et al. (1992) found that 4-year-old children could understand and access protagonists' goal plans when an experimenter asked them explanatory (why) questions and showed them pictures containing goal objects as prompts, but without such questions and prompts the narratives of 4-year-olds were merely descriptive or limited to action sequences. In fact, Stein and Glenn (1979) and Wimmer (1980) found that when 4-year-olds were asked why questions, they answered them with reasons and goals for actions as well as 8-year-olds did. They also retained the story information as well (Wimmer, 1980).

A third line of investigation demonstrating the effect of adult discussion on children's recall of verbal material is research on different instructional techniques used by teachers in schools and preschools. Asking questions is an element of direct instruction that has been found to be an effective and important teaching strategy (Brown & Wragg, 1993; Perry, VanderStoep, & Yu 1993; Whitby, 1992). It has been observed that teachers asking comprehension-oriented questions elicit higher-order responses from their students (Lamb, 1976), and that children's reading comprehension is greater if their teachers ask them questions and correct their mistakes (Schmidt, 1989), especially if the teachers' questions are more numerous, varied in type, and focused on the gist of the story (Mangano & Benton, 1984).

In these three lines of research, investigators focused on the *immediate* or *concurrent* effects of adult discourse. But what is known about whether support given in anticipation of the child's performance improves the child's expressed competence? Each of these lines of research can be extended over time to look for longer-term consequences of adult discussion and questioning.

Studies of the longer-term consequences of different teaching techniques demonstrate positive associations between the frequency of teachers' academic questions and students' achievement gains (Brophy & Good, 1985) and recall of central text material (Sinatra, Beck, & McKeown, 1993). Teacher questioning is especially likely to increase retention of text material for learning disabled students (Wong, 1979). Perhaps it would also be particularly helpful for younger children. Preschool children exposed to question-asking programs have been observed to make greater gains in problem-solving and memory tasks than children in other kinds of preschool programs (McGillicuddy-DeLisi, Sigel, & Johnson, 1979). Most relevant, in a recent study by Albanese and Antoniotti (1997), teachers told 4- and 5-year-old children a story, which was either accompanied by questions or just read, and then they asked the children to retell the story. The children who had been asked questions told stories that contained more correct content than the children who just had the story read to them.

In studies of the longer-term consequences of parental discussion on children's performance, McCabe and Peterson (1991) found that when parents extended the child's topics rather than switching topics, children told better narratives a year later, and McGillicuddy-DeLisi et al. (1979) reported that children whose parents preferred question asking as an informal teaching strategy showed greater cognitive gains. Moreover, when mothers of preschool children were trained to use what/who questions, open-ended questions, and expansions, this promoted their children's language development (Arnold, Lonigan, Whitehurst, & Epstein, 1994; Dale, Crain-Thoreson, Notari-Syverson, & Cole, 1996).

Studies of longer-term consequences of discussion with an experimenter show similar effects. Symons and Greene (1993) conducted an experiment with sixth- and seventh-grade children in which an adult either asked questions that required the children to construct explanatory answers or simply gave them the information; the children who were asked questions recalled more of the unfamiliar material. Appleton and Reddy (1996) trained 3-year olds to pass a false belief task by presenting a video clip and then asking the children questions about the clip and explaining the protagonists' thoughts and actions. Morrow (1986) found that giving 5-year-old children repeated experience in which they had structural guidance for retelling stories increased their narrative competence. Most relevant, Jukes (1997) had 3- and 4-year-old children watch a video of a circus enacted with toy figures. Then an adult asked them questions about events in the video, and three days later the children were asked to recall as much as they could about the video. In response to direct questions, children who had discussed the video with the adult showed higher recall than children in a control group. The discussion also improved free recall of the video events for children with high verbal ability.

There is ample evidence lurking in these studies, then, that adult discussion, and more specifically discussion that emphasizes focused and explanatory questions and provision of information to correct or extend children's knowledge, improves children's memory and performance, and by extrapolation would benefit their narrative production. The present study provides a direct test of the extent to which such preparation by an adult can enhance children's subsequent independent narrative performance.

### Goals of the Study

The purpose of the present study was to investigate whether the narrative performance of 5-year-old children would be improved over what has been observed in previous research by using a more memorable story genre and by offering adult preparation for retelling the story. Three specific hypotheses were tested:

- H1:** The first hypothesis was that 5-year-old children shown a videotaped dramatic story and given adult preparation to retell the story would produce narratives containing properties not typically observed in the narratives of children of this age. Specifically, the narratives would include (a) description of characters' goals, motives, and feelings, (b) identification of interpersonal conflicts between characters, and (c) comprehension of moral issues.

This hypothesis was based on research and theory suggesting that an audiovisual presentation would be more emotionally involving, attention grabbing, and memorable than a



text story and research showing that children's understanding and recall of information is promoted by discussion with an adult.

**H2:** The second hypothesis was that the most useful kind of discussion for promoting children's narrative performance would emphasize comprehension-enhancing questions and clarifications. It was predicted that children who were asked and corrected on a set of questions covering all parts of the story—setting, goal-directed actions, high point, resolution, internal states—would participate in a richer rehearsal than children who engaged in an informal, unstructured discussion about the movie, and that these questions and corrections would facilitate their comprehension and recall of the story. Moreover, it was predicted that these questions and corrections would lead children to include higher level narrative structures, such as problem complications and a subplot in their narratives. Because previous research has demonstrated that children of this age typically include events linked to the “causal chain” of the story, it was not expected that differences would be observed in recall of the main actions in the story.

The advantages of these comprehension-enhancing questions and corrections were expected to outweigh any potential benefits of having the mother be the person to conduct the informal discussion with the child—although most colleagues and all non-study mothers who were asked whether mothers or unfamiliar experimenters would do a better job of preparing children to retell a story predicted that mothers would be more effective. They argued that mothers would be superior because their children would be more comfortable with them and the mothers would be more attuned to their children's learning capabilities and therefore more aware of what they could be expected to recall. They would be able to “read” their children's needs in the situation better than a stranger and provide more effective scaffolding.

Our prediction that an experimenter asking a standard set of questions would be more effective than mothers was based on reasons that were (a) practical, (b) conceptual, and (c) empirical.

The practical reasons included the possibility that children's greater comfort level with their mothers might be unproductive. Perhaps the children would not pay as close attention to the mother and not stay on task as consistently as they would with a teacher-like experimenter. Moreover, mothers, not being teachers, might not keep their children on task as effectively as experimenters—nor might this be their main agenda. In addition, because this was the first time that the mothers had seen the movie, they would be less able than an experimenter with a prepared script to provide the child with a comprehensive set of questions to facilitate recall of the story. And finally, because mothers are undoubtedly naïve about narrative structures and about what constitutes a “good” story, their discussion of the story might not include all the elements expected to advance children's ability to produce a high level story.

The conceptual basis for the prediction that the experimenter would be more effective in preparing children to retell the story derives from ideas used to explain how questioning promotes children's cognitive development. As Sigel and his colleagues (Sigel & Saunders 1979; Sigel & Kelley 1988) have pointed out, question asking as an instructional model pro-

motes children's thinking and stimulates cognitive change. Questions encourage children to make their ideas explicit. They stimulate children to think about issues. They force children to distance themselves in time and place from events they have experienced and get them to re-present these events in words. Questions function as instigators, activators, and organizers of mental operations, because the only way the child can answer a question is to become actively engaged, producing those mental activities demanded by the inquiry. Each question form (what, where, why, when) engages a different mental process as well as different types of content: "where" questions orient the person; "why" asks for causal analysis; and so on. Trabasso et al. (1992) recognized this when they suggested that the reason they observed higher level narratives among 4-year-olds who were asked explanatory questions by an experimenter was that questioning promotes children's inferences about motivations for actions from past events. In the present study, questioning and correction were expected to focus children's attention on the important aspects of the story, make them think about the events presented, help them understand the more subtle or complex connections, conflicts, and internal states, and remind them of details they might have forgotten.

Empirical data to support the prediction that children would learn more about good storytelling from the experimenter than from their mothers came from several studies showing that mothers are unlikely to use the valuable teaching techniques of questioning and correction. Whittaker and Robinson (1987), comparing the verbal behavior of mothers and teachers with 5-year-old children at home and in school, found several features of adult-child talk that occurred frequently at school but rarely at home. One such feature was question-asking sequences intended to elicit a particular answer—a teaching strategy that, the researchers showed, promotes children's understanding. Trabasso et al. (1992) found that mothers telling a story to their 3-year-olds narrated the story at a level just above that of their children. Their questioning was governed by what they expected of the children and how they conceived of the children's competence. They provided scaffolding for the children's understanding, but they did not follow the pedagogical practices of systematic questioning and correction. The questions they asked pertained to actions, events, and objects; only 3% of their questions were why questions. In other words, mothers were not eliciting narratives in the same ways an experimenter or teacher would, by using explanatory questions and corrections. In McCabe and Peterson's (1991) study of mothers eliciting narratives from their children, only two thirds of the mothers ever corrected their children, and they did so for fewer than half of the narratives recorded. In fact, the one mother in the study who did a significant amount of direct correction of her child's narratives turned out to be a school teacher. Further evidence that mothers are unlikely to follow a pedagogical style of interacting with their children is provided by Varnhagen, Morrison, and Everall (1994). Five- and six-year-old children who were enrolled in school told more complex stories, including endings, obstacles, multiple episodes and subgoals, than children who were not in school—presumably because they were receiving pedagogical guidance for story telling from their teachers.

**H3:** The third hypothesis tested in the present study was that the more specific questions and corrections mothers used in their informal discussions of the movie, the more advanced their children's narratives would be. This hypothesis follows from the preceding one: if a pedagogical protocol is more effective than an informal discussion, then the more like the pedagogical protocol



the informal discussion is, the more effective it should be. That is, the more the mother behaved like a teacher, the better the child should do in the story retelling task.

## METHOD

### Sample

The experimental sample consisted of 66 pairs of mothers and children (53% of them boys) living in Orange County, California. They were randomly assigned to one of two conditions: children in the pedagogical condition ( $n=35$ ) were asked a standard set of questions after they viewed a movie clip; children in the informal discussion condition ( $n=31$ ) discussed the movie informally with their mothers before they retold the story. The mean age of the children (in both groups) was 5.3 years ( $SD = .2$ ; range = 4.7 to 6.0)<sup>1</sup> The families in the sample were participating in the longitudinal NICHD Study of Early Child Care and had been recruited randomly from hospital births (see NICHD Early Child Care Research Network, 1996). The average level of parents' education was 15.2 years (for both mothers and fathers); 56% of the mothers and of the fathers had graduated from college. All but three of the children were Caucasian (13 were Hispanic). A comparison group of 14 children, matched to the experimental group on age, race, and parents' education, was drawn from the same hospital birth records.

### The Story

The standard story was a 5-minute videotape clip selected from the movie "Prancer," a commercial children's film about a girl who becomes closely attached to one of Santa's reindeer. The video clip consists of three scenes: Scene 1, in which the goal or problem is introduced; Scene 2, in which there are plot complications; and Scene 3, in which there are additional complications, a high point, and a resolution. A synopsis of the videotape clip is as follows:

**Scene 1.** Jessica, an 8-9 year-old girl, is seen following an animal's tracks and hears shots as she walks through snowy fields and forest.

**Scene 2.** Jessica's father comes across his daughter unexpectedly while driving his truck through the forest to go shopping. He criticizes her for being in the forest alone. She explains she was looking for Prancer. They have a tearful confrontation when her father tells her she will be going to live with her Aunt Sarah because he is unable to give her the things she needs now that her mother is no longer there.

**Scene 3.** Jessica yells to her father to stop and the truck screeches to a halt as Prancer appears suddenly on the road in front of them, his leg bleeding. The father goes to get his gun to put the animal out of its misery. Jessica tries to stop him. "No, daddy, no!" They turn around and the animal has mysteriously disappeared.

This story involves one character (the girl) who is engaged in a goal-directed action (looking for the reindeer). It contains a strong causal chain coordinating the girl's goal-directed actions in Scenes 1 and 3. There is considerable scope in the movie for interpreting

the characters' internal states, as there are clear motives and emotions related to the plot. In addition, in Scene 2, the girl must deal with a second character (her father) and his conflicting goals and problem-solving actions. Therefore, a problem complication in the form of a subordinate plot is built into the story. The subordinate plot contains another story element as well: an interpersonal conflict (about going to live with Aunt Sarah). Finally, the story contains a high point in the final scene in which a moral issue is salient (*i.e.*, whether or not the father should shoot the reindeer).

Of the 66 mothers in the experimental sample, 21 thought that their children had previously seen the movie *Prancer*. To be sure that greater familiarity with the movie plot did not contribute to children's narrative performance, we compared the stories told by the children who had seen the movie with the stories told by children who had not, in an analysis of variance. There were no significant differences between the two groups in recall of objective facts and events in the video clip ( $F < 1$ ) or inclusion of high level narrative properties in the retold stories ( $F < 1$ ).

### Procedure

Each child first watched the *Prancer* videotape clip, with an adult, in a child development laboratory playroom. They were then "prepared" by that person to retell the story to another adult, and immediately afterward, they did so.

In the informal maternal discussion condition, the child watched the videotape with the mother. The child was told to watch the movie carefully because he or she would be telling the story afterward to someone who had not seen it, and the mother was instructed to talk to the child about the movie as she would at home, knowing that the child would have to tell the story to someone later. After viewing the videotape, mother and child discussed the story together for as long as they cared to. Actual observed discussions lasted from one to five minutes. When the mother signaled that the discussion was over, an experimenter entered the room. The mother told the child that she had work to do and left the room. The experimenter then presented the child with a "storyteller badge," seated him or her in the special "storytelling chair," and encouraged the child to tell her the best story he or she could about everything he or she had just seen in the "movie." During the storytelling, when the child paused, the experimenter asked, "Is there anything else?" After the child finished telling the story, the experimenter repeated what the child had said last and asked the child to tell her some more. This process continued until it was clear that nothing further could be elicited.

The same procedure was followed for children in the comparison group, except that they did not discuss the movie with their mother.

In the pedagogical condition, the child viewed the videotape with an experimenter rather than the mother. After they had watched the tape, the experimenter asked the child a standard set of questions (see next section). Then the second experimenter entered the room, the first experimenter left, and the second experimenter followed the same procedure for eliciting a story from the child as in the informal/maternal condition.

### Pedagogical Protocol

The questions asked by the experimenter were designed to improve children's stories by focusing their attention on the following story elements: (a) events in all scenes of the

story; (b) both the primary plot or causal chain (searching for reindeer) and the subordinate plot (father-child relations); (c) both characters' objective actions and internal states; (d) interpersonal conflict; (e) the moral issue; and (f) the order of the events in the story. When the child did not know the answer to a factual question or gave an incorrect answer, the experimenter offered an answer or correction. The two predominant features of the pedagogical protocol were: (a) the use of a substantial number of questions covering all actions and interactions involving the girl and the reindeer and the girl and her father and (b) the correction of the children's misunderstandings concerning these events when necessary. The following questions and answers (in parentheses) comprised the pedagogical protocol:

### Scene 1

- Q1. What happens at the beginning of the story? (The girl was walking in the forest.)
- Q2. What was the girl doing in the forest? (She was looking for the reindeer.)

### Scene 2

- Q3. What happened next in the story was that the dad came along and found the girl looking for the reindeer. When the dad came along in the truck, where was he going? (He was going shopping for groceries.)
- Q4. What did the dad and the girl talk about in the truck? (They were talking about how the girl shouldn't have gone into the forest alone, and they were talking about how the little girl was going to live with her Aunt Sarah.)
- Q5. How did the girl feel when her dad said she would have to go live with Aunt Sarah? (She felt sad.)

### Scene 3

- Q6. In the middle of the story as the dad and the girl were driving along in the truck, they suddenly stopped. Why did they stop? (Because the reindeer was in the road.)
- Q7. How did the reindeer get hurt? (The reindeer got shot, probably by a hunter.)
- Q8. When they first found the reindeer, how did the little girl feel? (She was sad because it was hurt, and, she was happy to find the reindeer.)
- Q9. The next thing that happened was the dad and the girl got out of the truck. What did the father do then? (He took his gun out.)
- Q10. Why was the dad going to shoot the reindeer? [Was it because he was sorry that the reindeer was hurting so much or was it because he didn't like the reindeer?] (It was because the reindeer was hurting so much. Sometimes when wild animals can't be helped they are shot so they won't hurt anymore.)
- Q11. Should the father shoot the reindeer? Why or why not? (No answer or correction offered.)



Q12. How did the little girl feel about shooting the reindeer? (She was sad and didn't want her dad to shoot the reindeer.)

Q13. How did the story end? (The reindeer disappeared.)

Q14. Can you make the story end "happily ever after?" (No answer or correction offered).

In summary, the pedagogical protocol contained eight questions relating to objective actions (Q1, Q2, Q3, Q4, Q6, Q7, Q9, Q13), five questions about characters' internal states (Q5, Q8, Q10, Q11 and Q12), two questions on goals (Q2 and Q3). Of the questions about internal states, one question addressed a potential conflict between the girl and her father (Q4) and three focused on the moral issue of shooting the deer (Q10, Q11, Q12). Question 13 not only called for telling what happened at the end of the story but could also include an explanation of why the deer disappeared. There were four "what" questions, one "where" question, five "how" questions, and three "why" questions.

The majority of children in the pedagogical condition answered the questions relating to objective actions correctly: 90% knew that the girl was looking for the deer (Q2), that the dad stopped because the deer was in the road (Q6), and that the dad took out the gun (Q9); 50% knew that the girl was walking in the forest (Q1), that the father was going shopping (Q3), and that the deer disappeared (Q13). The two questions about objective actions that were not answered correctly were what the dad and girl talked about in the truck (Q4) and how the reindeer got hurt (Q7); only 33% of the children gave correct or partially correct answers to these questions. Of the questions about internal states, almost all the children (97%) knew how the girl felt about shooting the reindeer (Q12), 80% knew the girl was sad about going to live with her Aunt (Q5), 70% knew she was happy to find the deer (Q8), and 50% knew she was sad that the deer was hurt (Q8). These findings are consistent with the results of research on children's understanding of emotions (Saarni et al., 1998). They show that 5-year-old children can accurately assess characters' emotional states, even though they may not spontaneously include them in their narratives. Only 12% of the children knew that the dad was going to shoot the deer because he was sorry the deer was in pain (Q10); 52% thought he was going to shoot the deer because he didn't like it. The deer-shooting situation clearly requires a more sophisticated understanding of emotions and motives than 5-year-old children in Orange County, CA have achieved.

### Coding

Adult-child dialogues and children's narratives were video recorded and transcribed. For coding the children's narratives, researchers created an exhaustive set of coding units which included all statements from all children's stories. These were divided into units reflecting recall of objective actions in the story and units reflecting comprehension of characters' thoughts and feelings (these are listed in Tables 2 and 3, respectively). Objective action units were used to analyze the frequency with which children included in their narratives actions on the causal chain and in the subplot. Comprehension units were used to analyze the frequency with which children included characters' internal states, conflicts, and moral issues from the main story and the subplot. Two measures consisting of the total number of objective actions recalled and the total number of comprehension units men-

tioned were constructed. Possible scores for these two measures were 18 points for recall of objective units and 15 points for comprehension units.

Codes for the mother-child conversations were developed similarly by compiling an exhaustive set of mothers' questions, which were then identified as comparable to those in the pedagogical protocol (either matches for specific questions or similar in terms of focus on story sequence or story elements). A measure of the similarity of the mother's questions to the pedagogical protocol was created by counting the number of such matched or similar questions asked by the mother.

### **Reliability**

Two pairs of coders coded the transcripts. One pair coded the mother-child discussion of the videotape clip and the other pair coded the children's stories. The coder pairs trained until they achieved 90% reliability on selected transcripts. All discrepancies between coders were resolved through blind consultation with a study investigator. Coders were blind to the children's experimental condition when they coded their narrative transcripts.

## **RESULTS**

### **Analysis Plan**

To test the three hypotheses posed in this study, the following analyses were carried out. To test the first hypothesis, that 5-year-old children shown a videotaped dramatic story and given adult preparation to retell the story would produce narratives containing properties not typically observed in the narratives of children of this age, the percentage of children in the experimental group who included each type of narrative element was calculated and compared with those reported in the literature. These percentages were also compared with those of children in the comparison group, who saw the videotape but did not receive adult preparation for retelling the story, and the significance of the difference between the two groups was tested using multivariate analysis of variance. In addition, the mean number of objective actions recalled and the mean number of comprehension units mentioned by children in the experimental group were compared with those of children in the comparison group, using *t* tests.

To test the second hypothesis, that the preparation provided by the pedagogical session would be more effective in advancing the level of children's narratives than simple informal discussion of the movie with the mother, the number of objective actions, the number of comprehension units, the particular story units, and the scenes in which they occurred were compared for children in the two experimental conditions. A multivariate analysis of variance was conducted to establish that there was an overall difference between the two groups for the entire set of story units, and univariate analyses of variance and *t* tests were used to test differences in the specific units included and in children's mean scores for number of objective actions and comprehension units. Follow-up analyses described mothers' and children's behavior during the informal maternal discussion sessions. In addition, story units and objective action and comprehension scores for children in the maternal discussion group were compared with those of children in the comparison group.

**Table 1.** Frequency with which Children Mention Specific Story Units, by Type of Unit

<i>Story Unit</i>	<i>Percent of Experimental Sample Mentioning</i>	<i>Percent of Comparison Group Mentioning</i>
<i>Setting</i>		
In forest	57	50
<i>Goals</i>		
Why girl is in forest (search for deer)	43	0
<i>Causal chain events</i>		
Girl is searching for deer	45	0
Deer is in road	37	7
Girl shouts for father to stop truck	29	7
Deer is injured	79	21
Child connects shots with wound	23	0
Father gets gun	40	29
Father goes to shoot deer	79	43
Deer vanishes	53	36
Why deer vanishes	21	0
<i>Internal states: feelings</i>		
Father angry because girl in forest	15	0
Girl sad about moving to aunt's	6	0
Girl happy to find deer	2	0
Girl sad that deer is hurt	3	0
Girl unhappy that father wants to shoot deer	3	0
Deer suffering	12	0
<i>Internal states: intentions</i>		
Girl intends to stop father from shooting	14	0
Father intends to send girl to aunt's	17	0
<i>Conflict</i>		
Father yells at girl when he picks her up	20	21
Father says "I told you not to go into woods..."	25	29
Girl has conflict with father about aunt	6	0
Girl tries to stop father from shooting deer	29	0
<i>Subplot</i>		
Going to live with aunt	15	7
<i>Problem complication</i>		
Father comes along (obstacle to girl finding deer)	26	21
<i>Moral issue</i>		
Understands why father wants to shoot deer	27	0

To test the third hypothesis, that the more the mother's discussion of the movie was like the pedagogical protocol, the more advanced their children's narratives would be, the number of pedagogical questions asked by mothers was correlated with the number of objective action units and comprehension units included in their children's stories, and *t* tests were used to compare the objective action and comprehension scores of children whose mothers did and did not correct their mistakes.

**H1:** The first hypothesis tested was that children in the experimental sample, who were shown a videotaped dramatic story and given adult preparation to retell the story, would produce narratives that not only included settings,



goals, and events on the causal chain, but also included characters' internal states (intentions and feelings), interpersonal conflicts, problem complications, the subplot, and moral issues. Table 1 presents the results of the analysis of children's narratives in terms of specific elements mentioned. At least 40% of the children in the experimental sample mentioned the setting in which the story took place (the forest), identified the primary goal of the story (to find the reindeer), and gave the essential events from the causal chain (the girl was searching for the deer; the deer was injured; the father got his gun; he was going to shoot the deer; the deer vanished). These findings replicate previous research showing that 5-year-old children are capable of recalling settings (Stein & Glenn, 1979), goals (Trabasso et al., 1992), and events on the causal chain (e.g., Trabasso et al., 1992).

Results in Table 1 also reveal that the more advanced narrative elements were not as frequently mentioned as these setting, goal, and causal chain events. Interpersonal conflicts, problem complications, and the moral issue of the story were each mentioned by approximately one quarter of the experimental sample: 25% mentioned the conflict when the father scolded the girl for being in the forest; 29% mentioned the conflict of the girl trying to stop her father from shooting Prancer; 26% included the problem complication of the father coming along and stopping the girl from looking for the reindeer; 27% discussed the moral issue of shooting the deer. The subplot of going to live with Aunt Sarah was mentioned by only 15% of the children and only 17% mentioned the father's intention to send the girl to live with Aunt Sarah. About the same number of children (15%) mentioned that the father was angry about the girl being in the forest. Other emotions were mentioned extremely rarely: only one child mentioned that the girl was happy when she found the deer, and only two children noted that she was sad that the deer was hurt. Although each specific emotion was mentioned by a minority of the children in the experimental sample, however, almost half the sample (47%) did mention at least one of the eight internal state items, and slightly more than half (55%) mentioned at least one of the four conflict items. Two thirds (65%) of the sample mentioned at least one of the comprehension items (internal states or subplot or moral issue). Thus the first hypothesis received some support. The majority of children in the experimental sample, after a dramatic movie presentation and adult preparation, told stories that included some advanced narrative elements—although these elements were not plentiful in individual stories.

A second analysis showed that the stories of the children in the experimental group were not only more advanced than the stories of children in previous research, they were more advanced than the stories of the children in the comparison group, who received no adult preparation for their narrative performance. As the figures in Table 1 indicate, the differences between the experimental and comparison groups were pervasive: children in the experimental sample were more likely than children in the comparison group to mention the story goal, characters' internal states, one of the conflicts (when the girl tried to stop the father from shooting the deer), the subplot, and the moral issue. They were also more likely to mention events on the causal chain.

These differences between the experimental and comparison groups were statistically significant. A MANOVA for all the story items in Table 1 considered simultaneously approached significance [ $F(26,79) = 1.67, p < .06$ ], and differences between the two

Table 2. Objective Action Units Mentioned by Children in the Three Groups

Objective Action Unit	Included in Pedagogical Protocol?	Pedagogical Group (%) (n = 35)	Informal/Maternal Group (%) (n = 31)	Comparison Group (%) (n = 14)	F(2,79)	Significant t values <sup>1</sup>	
						Pedagogical vs. Informal Maternal	Informal/Maternal vs. Comparison
Girl searching for deer	Y	49	41	0	5.81**		4.66***
Mentions tracks		11	10	14			
Sound of shots		6	13	0			
In forest	Y	71	42	50	3.57*	2.48*	
Girl walking along road		0	7	0			
Father driving truck	Y	29	23	21			
Father going shopping	Y	51	0	7	19.17***	6.0**	
Father yells at girl		23	16	21			
Father says "I told you not to..."		34	16	29			
Talking about aunt	Y	23	7	0	3.39*	1.93 <sup>+</sup>	
Girl cries about Aunt Sarah move		0	7	7			
Deer is in road	Y	46	26	7	4.06*		
Girl shouts for father to stop truck		37	19	7	2.93 <sup>+</sup>		
Deer is injured	Y	89	68	21	13.71***	2.06*	3.12***
Father goes to get gun	Y	49	29	29			
Father goes to shoot deer	Y	86	71	43	5.05**		1.83 <sup>+</sup>
Girl tries to stop father shooting		26	32	21			
Deer vanishes	Y	46	61	36			
Mean number of objective action units		6.74	4.90	2.84	10.68***	2.84***	2.16*

Notes: <sup>+</sup>  $p < .08$ , \*  $p < .05$ , \*\*  $p < .01$ .<sup>1</sup> Table contains all significant t values for contrasts for which significant F values were obtained.

**Table 3.** Comprehension Units Mentioned by Children in the Three Groups

Comprehension Unit	Included in Pedagogical Protocol?	Pedagogical Group (%) (n = 35)	Informal/Maternal Group (%) (n = 31)	Comparison Group (%) (n = 14)	F(2,79)	Significant t values <sup>1</sup>	
						Pedagogical vs. Informal Maternal	Informal/Maternal vs. Comparison
Why girl is in forest (goal)	Y	49	36	0	5.73**		4.06***
Father angry because girl in forest		14	16	0			
Father intends to send girl to aunt	Y	20	13	0			
Girl sad about moving to aunt's	Y	9	3	0			
Girl/father conflict about moving		11	0	0	2.79 <sup>+</sup>	2.09*	
Girl happy to find deer	Y	3	0	0			
Girl sad to find deer hurt	Y	6	0	0			
Father wants to shoot deer		6	13	0			
Girl unhappy about shooting deer	Y	6	0	0			
Girl tries to stop shooting		17	10	0			
Understands moral issue	Y	40	13	0	6.69**	2.61*	2.11*
Deer is suffering	Y	17	7	0			
Connects earlier shots to wound		29	16	0	2.89 <sup>+</sup>		2.40*
Explains deer vanishing		17	26	0			
Gives happy ending	Y	11	0	0	2.79 <sup>+</sup>	2.09*	
Mean number of comprehension units		3.97	2.36	0	15.68***	2.63***	4.07***

Notes: <sup>+</sup> p < .07. \* p < .05. \*\* p < .01.

<sup>1</sup> Table contains all significant t values for contrasts for which significant F values were obtained.



groups for mean scores on recall of objective actions and comprehension units reached significance (for objective actions,  $t = 3.41$ ,  $p < .001$ ; for comprehension,  $t = 4.38$ ,  $p < .0001$ ). In fact the performance of the comparison group did not exceed that of children in previous studies. Their stories did not include *any* mention of internal states or moral issue and the percentage mentioning other high level elements (conflict, subplot, problem complications) was quite low. Thus, it appears, that in the present study, it was the adult preparation rather than the audiovisual presentation that promoted the expression of children's narrative competence.

**H2:** The second hypothesis tested in the study was that the preparation for the story retelling provided by a set of pedagogical questions and corrections would be more effective in advancing the level of children's narratives than simple informal discussion of the movie. The first comparison to test this hypothesis was the analysis of differences between the two groups of children in the experimental sample in terms of the number of objective actions and number of comprehension units included in their narratives. Supporting the hypothesis, the children receiving the pedagogical protocol scored significantly higher than the children who experienced informal maternal discussion in both number of objective action units and number of comprehension units (see Tables 2 and 3 respectively). Significant differences were also documented by MANOVAs for the set of objective action units in Table 2 considered simultaneously ( $F(18, 65) = 2.97$ ,  $p < .001$ ) and the set of comprehension units in Table 3 ( $F(15, 65) = 1.85$ ,  $p < .05$ ). Of the 18 objective action units, 13 were mentioned more frequently by the pedagogical group (4 of them significantly); of the 15 comprehension units, 12 were mentioned more frequently by the pedagogical group (3 of them significantly). The pedagogical group scored almost 30% higher than the informal maternal discussion group on the mean score for objective actions and 40% higher on comprehension. The highest total score for recall + comprehension in the pedagogical group was 24 (out of 33); the highest total score in the informal maternal group was 15. The percentage of children who mentioned *any* of the comprehension units was higher in the pedagogical group (74%) than in the informal maternal group (55%). All these analyses clearly support the hypothesis that asking children a relatively comprehensive set of questions and correcting their errors can improve their recall of narrative material in a subsequent story retelling.<sup>2</sup>

The results showing that the pedagogical group had a higher frequency of objective action and comprehension units suggest that mothers did not prepare their children to retell the story as well or as thoroughly as the experimenter. Examination of the mother-child discussion transcripts showed that many mothers devoted their time to social interactions with the children, talking about the children's and their own feelings about the movie (35%) rather than the story itself. In 39% of the mother-child discussions, the child became preoccupied with some aspect of the movie or something personal, rather than discussing the entire story. Although some mothers (26%) did remind the children that they would shortly have to tell the story to the experimenter, mothers in general were less likely than

**Table 4.** Mean Number of Objective and Comprehension Units Mentioned, By Scene and Experimental Condition

	<i>Pedagogical Group (n = 35)</i>	<i>Informal/Maternal Group (n = 31)</i>	<i>Significant t values</i>
Scene 1: Objective units	1.37	1.07	
Scene 1: Comprehension units	.63	.52	
Scene 2: Objective units	1.97	.94	3.65**
Scene 2: Comprehension units	.74	.45	
Scene 3: Objective units	3.40	2.87	
Scene 3: Comprehension units	1.51	.84	2.50*

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

the experimenter to adhere to a strict focus on story details. In addition, fewer than half the mothers (39%) corrected any of their children's misconceptions.

Although the analyses presented above demonstrate that children in the pedagogical group performed better overall, they do not establish which specific narrative elements accounted for the difference. It was predicted that the differences would occur not in the recall of events on the causal chain (which previous research has suggested are the most common elements in the narratives of 5-year-olds), but in the inclusion of internal states, conflicts, and moral issues. One way this was tested was by comparing children's inclusion of elements from the different scenes in the story (these analyses are presented in Table 4). The groups did not differ in their recall of objective material from Scenes 1 and 3, the two scenes most clearly linked to the causal chain. However, the pedagogical group did remember more objective action units from Scene 2, the scene containing problem complications (the father as an obstacle to the girl's finding the deer) and the subplot (the girl having to go live with her aunt). The two groups were also significantly different in their comprehension of Scene 3, the scene containing the moral highpoint of the story.

To investigate differences between the pedagogical and maternal discussion groups in more detail, we examined differences in the percentages of children in each group who mentioned each specific story unit. Analyses of variance and  $t$  tests were used to test the statistical significance of these differences (the results of these analyses are also presented in Tables 2 and 3). There was, as predicted, no difference between the pedagogical and informal maternal discussion groups in recall of the main events on the causal chain: the girl searches for the deer (49%, 41%), the father goes to shoot the deer (86%, 71%); the reindeer vanishes (46% 61%). The only significant difference between the two groups in their recall of events on the causal chain was that children in the pedagogical group were more likely to mention that the reindeer was injured (89% vs 68%). However, 11% of the children in the pedagogical group mentioned that father and daughter were in conflict (arguing) about Aunt Sarah, whereas no children in the informal maternal group mentioned this—a significant difference—and paralleling this finding, 23% of the pedagogical group recalled the objective fact of the Aunt Sarah discussion (the story subplot), whereas only 7% of the informal maternal discussion group did. Children in the pedagogical group also produced significantly more stories that mentioned the moral issue of shooting the deer. Of the children in the pedagogical group, 40% included material about the moral issue in their

stories; only 13% children in the informal/maternal group did so. Thus the analyses of group differences in the recall of specific narrative units supported the hypothesis that a pedagogical protocol would improve children's stories, particularly by increasing the inclusion of higher level narrative structures like conflict, a subplot, and moral understanding, more than informal discussion of the movie with mother.

The effects of the pedagogical protocol on children's recall were very specific: all the significant differences between the two groups occurred in details or events that were included or alluded to in the pedagogical questions (the forest, father going shopping, deer injured, conflict about aunt, going to live with aunt, why father wants to shoot deer, happy ending). The significantly more frequent inclusion of a happy ending in the pedagogical group (11% vs. 0%) can be explained by the inclusion of this prompt in the standard protocol ("Can you make the story end 'happily ever after'?"). No mothers included this in their discussion of the movie. The inclusion of information about the setting (the forest) (mentioned by 71% of the children in the pedagogical group vs. 42% in the mother discussion group) was probably the result of the experimenter's focusing the child's attention on the setting with two questions: "What happened at the beginning of the story?" (corrected, if necessary, to "The girl was walking in the forest.") and "What was the girl doing in the forest?" Inclusion of the fact that the father was going shopping (mentioned by 51% of the children in the pedagogical condition and none of the children in the mother discussion condition) was the direct result of the question "Where was the father going?" Examination of the mother-child dialogue transcripts revealed that none of the mothers asked their children about where the girl's father was going when he met his daughter on the road. This detail was quite incidental to the story (and the subplot), but its inclusion in the narratives of half of the children in the pedagogical group demonstrates how important each standard question was for augmenting the children's narratives.

**H3:** The third hypothesis tested in the study was that the more specific questions and corrections mothers used in their informal discussions of the movie content (that is, the more the mother's conversation resembled the pedagogical protocol), the more advanced the children's narratives would be. Mothers generally asked fewer questions than the experimenter (average = 5 different questions, range 0 - 9, vs. 14 questions in the pedagogical protocol). The number and frequency of standard questions asked by mothers was significantly correlated with the number of objective action units ( $r = .31, p < .05$ ) and comprehension units included in the children's stories ( $r = .32, p < .05$ ). When mothers were divided into those who did and those who did not correct their children, the children of mothers who corrected their mistakes included in their stories significantly more objective actions ( $M_s = 6.4$  vs.  $3.9, t = 2.9, p < .01$ ) and comprehension units ( $M = 3.4$  vs.  $1.7, t = 2.5, p < .02$ ). Thus, the results of these analyses supported the third hypothesis and confirmed that the extent to which mothers emulated the pedagogical approach predicted their children's narrative performance.

Further confirmation of this hypothesis came from analyses comparing the narratives of children in the maternal discussion group with narratives of children in the comparison group—whose mothers did not question or correct them at all. Mean scores for objective



action and comprehension units were significantly higher for children in the maternal discussion group (see Tables 2 and 3 respectively); in fact, it is noteworthy that children without the benefit of adult discussion included *none* of the comprehension items in their stories. When the children in the comparison group were included in the calculations of correlations between mothers' questioning and children's narratives, with these children receiving a score of 0 for number of questions, correlations rose to .38 ( $p < .01$ ) for objective actions and .50 ( $p < .001$ ) for comprehension units.

### DISCUSSION

In the present study, 5-year-old children were shown a movie story, discussed it with their mother or an experimenter, and retold what they had seen. With the advantages of seeing a dramatic audiovisual presentation and discussing it with an adult, some children were able to include in their retold stories elements that are rare in the narratives of children this young (problem complications, interpersonal conflicts, moral issues, internal states). Responding to a finite set of questions that focused their attention on both important and subtle aspects of the story and having their misperceptions about events corrected increased children's recall (and comprehension) by 30% (and 40%) over children who simply discussed the movie informally with their mothers and 50% (and 100%) over children who received no adult input at all.

What are the implications of these findings? The first implication is that 5-year-old children have the ability to tell more complex and detailed stories if they are given adult support. Without support the children's stories were thin, lacking internal states and moral issues. Even with the advantages offered by a dramatic audiovisual presentation, children with no adult support told only action-sequence stories. The most detailed narrative given by a child who did not discuss the movie with an adult, was as follows:

There was a little girl that was walking, and her dad told her not to go out in the woods by herself, and then he called her into the car and he was driving and he kept driving and she talked to her dad about something and I don't remember what it was. And he saw a reindeer and did you know that the reindeer has like a little bump on it (pointing to leg), and the daddy brought out a gun and the little girl started hitting her dad.

A second implication of the results of the study is that the support provided by the adult need not occur simultaneously with the story telling. Adult conversation can be used to prepare children for a later performance. In this study, when children had the opportunity to talk about events in the story with an adult before they narrated it, they told a better story, because they included ideas from the discussion in their narratives. Even an informal conversation improved the child's story telling. Here is an example of a mother-child discussion and the story subsequently told by the child (this child's story received the seventh highest score of the children in the maternal discussion group ( $n = 31$ )):

Mother: What are you gonna tell me about that movie? What happened?

Child: *Nothing.*

Mother: What do you think about that? Who shot him?

Child: *The dad.*

Mother: The dad shot him? Did the dad shoot him the first time, or did the dad shoot him a second time?



*Child:* The first time.  
*Mother:* The dad shot him the first time?  
*Child:* Yeah.  
*Mother:* He did that?  
*Child:* Yeah.  
*Mother:* He did?  
*Mother:* What else did you see? What was the video about?  
*Child:* Umm, a deer.  
*Mother:* And anybody else?  
*Child:* Nope.  
*Mother:* There wasn't a little girl in there?  
*Child:* Yeah. Oh, yeah.  
*Mother:* And what was she doing there?  
*Child:* Looking for the reindeer.  
*Mother:* Good. Who found it, walking in the road?  
*Child:* The dad.  
*Mother:* What was her dad doing?  
*Child:* He, he was crossing.  
*Mother:* No, he was driving.  
*Child:* Oh, I forgot.  
*Mother:* What were they talking about on the road to get groceries?  
*Child:* The reindeer.  
*Mother:* Were they talking about a reindeer? I thought they were talking about something else. Was the little girl upset about something?  
*Child:* Yeah.  
*Mother:* What was she upset about?  
*Child:* To go live with her aunt.  
*Mother:* Why did she not want to live with her aunt?  
*Child:* Cause she was, cause she wanted to stay.  
*Mother:* What?  
*Child:* She wanted to stay with her father.  
*Mother:* Her dad, she wanted to stay with her daddy?  
*Child:* Yeah.  
*Mother:* And then what happened, when they were talking about that?  
*Child:* The reindeer.  
*Mother:* How did they see him?  
*Child:* He was driving.  
*Mother:* He was driving? The reindeer was driving? [Both laugh] The reindeer is allowed to drive?  
*Child:* No. The dad.  
*Mother:* Oh, the dad was driving. Where was the reindeer?  
*Child:* On the street.  
*Mother:* On the street? Is that a good place to be?  
*Child:* No.  
*Mother:* No. You have to look both ways before you cross?  
*Child:* No.  
*Mother:* No?  
*Child:* Reindeers can't understand that.  
*Mother:* What?  
*Child:* Reindeers can't understand that.  
*Mother:* Why can't they?  
*Child:* Because they're reindeers!

Mother: Oh, because they're reindeers. Okay, and then what happened? Was the reindeer hurt at all?

Child: Yeah.

Mother: How did he get hurt?

Child: He got shot.

Mother: And what was the dad gonna do?

Child: [Makes gun-firing noises]

Mother: Shoot him again? Kill him? Why was he going to do that?

Child: Cause they wanted to have food.

Mother: For food?

Child: Yeah.

Mother: Can you eat reindeer?

Child: Yeah.

Mother: Yeah? Have you ever eaten reindeer?

Child: No!

Mother: No. I wonder how it tastes. Would you like to eat reindeer?

Child: Uh-uh, too snowy.

#### The child's story:

Once upon a time there was this cute little girl. She was looking; she saw something; and she went after it. And then the father came up and said, "Get in here!" And they were talking about the little girl living with her aunt. She wanted to stay there, with her father. And then they were talking about it and suddenly a reindeer was on the road. And it was hurt and the father came to kill it. And when he got to kill it, when he shot it, it was gone. That was the end.

The third implication of the findings from the study is that some kinds of discussion are better than others at improving children's narratives. An informal conversation is not as effective in promoting narrative production as a question and answer session that covers all important aspects of the story. After the experimenter focused their attention on key events, internal states, and moral issues and clarified the aspects of the story that the child had not understood, children in the study told more complete and complex stories. The following was one of the highest level narratives produced by children who received the pedagogical protocol:

Once upon a time there was a little girl. She was walking through the forest looking for the reindeer. Then the dad came. The dad was going shopping, and he came for the little girl. And they were driving and talking about uh, she shouldn't go in the forest by herself. And then the next thing they talked about... that she didn't want to live with her Aunt Sarah and she wanted to stay with her dad and she wanted to help her dad. That was what the next thing they were talking about. While they were driving, they saw the reindeer. They stopped because she saw the reindeer. The dad saw that his leg was hurt. He'd got shot. So the dad got his gun out to kill the reindeer so it wouldn't hurt anymore. And the little girl got sad. Just as the father was about to shoot it, the reindeer was gone, happily ever after.

These findings are consistent with the results of previous research showing that adult questions prompt children's recall (e.g., Pratt et al., 1988; Trabasso et al., 1992) and comprehension (Schmidt, 1989), but extend the previous results in demonstrating that effects of adult questioning persist when questions are asked ahead of time and are evident in children's narratives. The findings are particularly similar to those from two recent studies, by Albanese and Antoniotti (1997), in Italy, and by Jukes (1997), in England. In these two

studies, children who were asked questions about a story or video presentation were able to give more detailed accounts of what they had heard or seen. But the results of the present study extend the findings of these other studies with more detailed analyses of the effects of adult questions on children's narrative productions. The results also support the theoretical importance of questioning as an instructional strategy (cf. Sigel & Saunders, 1979; Sigel & Kelley, 1988).

Although this may not be news to any school teacher, it may be new for mothers (and developmental psychologists). Consistent with previous research (McCabe & Peterson, 1991; Trabasso et al., 1992; Whittaker & Robinson, 1987), our findings indicated that mothers are not naturally teachers. They were not as likely as the scripted experimenter to ask the children questions and correct their misunderstandings. This does not mean, however, that mothers cannot promote their children's narrative performance as well as experimenters. Because we were interested in what mothers do "naturally" to promote their children's narrative performance, we instructed them to "do what you would do at home." They were not told to "act like a teacher." In a future study, it would be worth prompting mothers more directly to help their children understand a story and try to "teach" them to retell it. Some mothers in this study (like the one quoted above) were quite good at asking their children questions and correcting their mistakes, and the more the mothers did act like teachers, the better their children did in telling a good story. It is also worth suggesting to parents that they can help their children develop narrative skills by talking to them in detail about the movies and TV shows they watch together at home.

Teachers, too, can learn from the results of this study. Asking questions that are specific, inclusive, systematic, and explanatory, and correcting misperceptions and misconceptions seems to be an effective way to promote children's narrative performance, just as it has been observed to promote cognitive change and school learning (Brophy & Good, 1985; Sinatra et al., 1993; Wong, 1979). Direct links were observed between the content of questions asked and the content of stories told. Even a complex issue like the moral rightness of shooting an injured animal could be addressed and explained with just a few questions so that the children understood it well enough to include it in their stories. Not all aspects of a good story were so easy to inculcate in children's minds; the pedagogical protocol was not very effective in getting children to talk about characters' emotional states if they were not obvious in the character's behavior—despite the fact that the children could correctly identify these emotions when asked directly about them. For example, 97% of the children in the pedagogical group knew, when asked, that the girl felt unhappy about shooting the deer, but only 6% of them spontaneously mentioned this fact in their retelling of the movie story. They were more likely to mention the fact that the father was angry at the girl, an emotion that was expressed in the overt behavior of the father's yelling.

It is important to investigate whether this kind of intervention generalizes to children's later telling or retelling of stories or whether the same results obtain with older children who might require less preparation. The results of the study suggest that structured discussion of an audiovisual presentation can be a potent method of promoting children's storytelling ability. In future research it would be worthwhile to investigate the value of utilizing this technique in the kindergarten and elementary school curriculum. Television and videotaped movies—at home or at school—can serve a function beyond that of electronic babysitter when they are combined with adult discussion; they can be used as a painless way of promoting narrative communication and competence. This study is not the endpoint

of research on promoting children's narrative development, but, we hope, a stepping stone to further discoveries and practical applications.

**Acknowledgements:** This research received financial support from the National Institute of Child Health and Human Development, as a site-specific part of the NICHD Study of Early Child Care. The assistance of the following people was invaluable: Virginia Allhusen and Andrea Karsh (coordination of data collection), Alicia Kruger and Shivani Patel (data coding), Luke Thelen and Craig Hayward (data analysis).

## NOTES

1. Child's age was not related to any of the dependent variables in the study and was therefore not included in analyses of the effects of the experimental conditions.

2. Because the recall of both objective actions and subjective states was correlated with the length of children's stories, a two-way ANOVA was performed. Even with the effect of number of words removed, children in the pedagogical group recalled more objective units ( $M_s = 6.64$  vs.  $4.98$ ,  $F = 13.68$ ,  $p < .001$ ) and comprehension units ( $M_s = 3.89$  vs.  $2.43$ ,  $F = 8.53$ ,  $p < .001$ ) than the informal maternal discussion group.

## REFERENCES

- Albanese, O., & Antoniotti, C. (1997). Teacher dialogue style and children's story comprehension. *European Journal of Psychology of Education, 12*, 249-259.
- Applebee, A. N. (1978). *The child's concept of story*. Chicago: University of Chicago.
- Appleton, M., & Reddy, V. (1996). Teaching three-year-olds to pass false belief tests: A conversational approach. *Social Development, 5*, 275-291.
- Arnold, D. H., Loniga, C. J., Whitehurst, G. J., & Epstein, J. N. (1994). Accelerating language development through picture-book reading: Replication and extension to a video training format. *Journal of Educational Psychology, 86*, 235-243.
- Baddeley, A. (1986). *Working memory*. Oxford: Clarendon Press/Oxford University Press.
- Beentjes, J. W., & van der Voort, T. H. (1993). Television viewing versus reading: Mental effort, retention, and inferential learning. *Communication Education, 42*, 191-205.
- Botvin, G. J., & Sutton-Smith, B. (1977). The development of structural complexity in children's fantasy narratives. *Developmental Psychology, 13*, 377-388.
- Brophy, J., & Good, T. (1985). Teacher effects. In M. Wittrock (Ed.), *Third handbook of research on teaching*. New York: Macmillan.
- Brown, G., & Wragg, E. C. (1993). *Questioning*. London: Routledge.
- Bruner, J. (1986). *Actual minds, possible worlds*. Cambridge: Harvard.
- Cahill, L., & McGaugh, J. L. (1995). A novel demonstration of enhanced memory associated with emotional arousal. *Consciousness and Cognition, 4*, 410-421.
- Dale, P. S., Crain-Thoreson, C., Notari-Syverson, A., & Cole, K. (1996). Parent-child book reading as an intervention technique for young children with language delays. *Topics in Early Childhood Special Education, 16*, 213-235.
- Fivush, R., & Fromhoff, F. A. (1988). Style and structure in mother-child conversations about the past. *Discourse Processes, 11*, 337-355.
- Frick, R. W., (1984). Using both auditory and a visual short-term store to increase digit span. *Memory and Cognition, 12*, 507-514.
- Goldberg-Reitman, J. (1992). Young girls' conception of their mothers' role: A neo-structural analysis. In R. Case (Ed.), *The mind's staircase* (pp. 135-152). Hillsdale, NJ: Erlbaum.
- Hall, K. (1995). Learning modes: An investigation of perceptions in five Kent classrooms. *Educational Research, 37*, 21-32.



- Hudson, J. A., & Shapiro, L. R. (1991). From knowing to telling. The development of children's scripts, stories, and personal narratives. In A. McCabe & C. Peterson (Eds.), *Developing narrative structure* (pp. 89-136). Hillsdale, NJ: Erlbaum.
- Jukes, M. C. H. (1997, April). *Developmental changes in the effect of post-event discussion on preschoolers' recall of events: Charting the development of a socially accessible memory system*. Poster presented at the biennial meeting of the Society for Research in Child Development, Washington, DC.
- Kernan, K. T. (1977). Semantic and expressive elaboration in children's narratives. In S. Ervin-Tripp & C. Mitchell Kernan (Eds.), *Child discourse* (pp. 91-102). New York: Academic.
- Labov, W., & Waletzky, J. (1967). Narrative analysis: Oral versions of personal experience. In J. Helm (Ed.), *Essays on the verbal and visual arts* (pp. 12-44). Seattle, WA: University of Washington.
- Lamb, W. (1976). Ask a higher-level question, get a higher-level answer. *Science Teacher*, 43, 22-23.
- Landau, S., Lorch, E. P., & Milich, R. (1992). Visual attention to and comprehension of television in attention-deficit hyperactivity disorder and normal boys. *Child Development*, 63, 928-937.
- Lorch, E. P., Anderson, D. R., & Levin, S. R. (1979). The relationship of visual attention to children's comprehension of television. *Child Development*, 50, 722-727.
- Mandler, J. M., & Johnson, N. S. (1977). Remembrance of things parsed: Story structure and recall. *Cognitive Psychology*, 9, 111-151.
- Mangano, N. G., & Benton, S. L. (1984). Comparison of question-response-feedback interactions during basal reader instruction. *Journal of Educational Research*, 78, 119-126.
- McCabe, A., & Peterson, C. (1991). Parental style of narrative elicitation. In A. McCabe & C. Peterson (Eds.), *Developing narrative structure* (pp. 217-253). Hillsdale, NJ: Erlbaum.
- McCabe, A., & Peterson, C. (1984). What makes a good story? *Journal of Psycholinguistic Research*, 13, 457-480.
- McGillicuddy-DeLisi, A. V., Sigel, I. E., & Johnson, J. E. (1979). The family as a system of mutual influences: Parental beliefs, distancing behaviors, and children's representational thinking. In M. Lewis & L. A. Rosenblum (Eds.), *Genesis of behavior: Vol. 2. The child and its family* (pp. 91-106). New York: Plenum.
- McKeough, A. (1992). A neo-structural analysis of children's narrative and its development. In R. Case (Ed.), *The mind's staircase: Exploring the conceptual underpinnings of children's thought and knowledge* (pp. 171-188). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Morrow, L. M. (1986). Effects of structural guidance in story retelling on children's dictation of original stories. *Journal of Reading Behavior*, 18, 135-152.
- NICHD Early Child Care Research Network. Characteristics of infant child care: Factors contributing to positive caregiving. *Early Childhood Research Quarterly*, 11, 269-306.
- Paivio, A. (1991). *Images in mind*. New York: Harvester Wheatsheaf.
- Perry, M., VanderStoep, S. W., & Yu, S. L. Asking questions in first-grade mathematics classes: Potential influences on mathematical thought. *Journal of Educational Psychology*, 85, 31-40.
- Pratt, M. W., Kerig, P., Cowan, P. A., & Cowan, C. P. (1988). Mothers and fathers teaching 3-year-olds: Authoritative parenting and adult scaffolding of young children's learning. *Developmental Psychology*, 24, 832-839.
- Repacholi, B. M., & Gopnik, A. (1997). Early reasoning about desires: Evidence from 12- and 18-month-olds. *Developmental Psychology*, 33, 12-21.
- Saarni, C., Mumme, D. L., & Campos, J. J. (1998). Emotional development: Action, communication, and understanding. In W. Damon (Ed.) and N. Eisenberg (Volume Ed.), *Handbook of Child Psychology: Vol. 3. Social Emotional, and Personality Development* (5th ed., pp. 237-310). New York: Wiley.
- Schmidt, M. W. (1989). Method of questioning and placement of questions: Effects on LD students' comprehension. *Learning Disability Quarterly*, 12, 192-198.
- Sharp, D. L. M., Bransford, J. D., Goldman, S. R., Risko, V. J., Kinzer, C. K., & Vye, N. J. (1995). Dynamic visual support for story comprehension and mental model building by young, at-risk children. *Educational Technology Research & Development*, 43, 25-42.
- Sigel, I. E., & Kelley, T. D. (1988). A cognitive developmental approach to questioning. In J. T. Dillon (Ed.), *Questioning and discussion: A multidisciplinary study* (pp. 105-134). Norwood, NJ: Ablex.
- Sigel, I. E., & Saunders, R. (1979). An inquiry into inquiry: Question asking as an instructional model. In L. Katz (Ed.), *Current topics in early childhood education, Vol. 2*. (pp. 169-193). Norwood, NJ: Ablex.
- Sinatra, G. M., Beck, I. L., & McKeown, M. G. (1993). How knowledge influenced two interventions designed to improve comprehension. *Reading Psychology*, 14, 141-163.

- Stein, N. L. (1988). The development of children's storytelling skill. In M. B. Franklin & S. Barten (Eds.), *Child language: A book of readings* (pp. 282-297). New York: Oxford.
- Stein, N. L., & Glenn, C. G. (1979). An analysis of story comprehension in elementary school children. In R. O. Freedle (Ed.), *Advances in discourse processes: Vol. 2. New directions in discourse processing* (pp. 53-120). Norwood, NJ: Ablex.
- Stein, N. L., & Policastro, M. (1984). The concept of a story: A comparison between children's and teachers' viewpoints. In H. Mandl, N. L. Stein, & T. Trabasso (Eds.), *Learning and comprehension of text* (pp. 113-158). Hillsdale, NJ: Erlbaum.
- Symons, S., & Greene, C. (1993). Elaborative interrogation and children's learning of unfamiliar facts. *Applied Cognitive Psychology*, 7, 219-228.
- Thompson, V. A., & Paivio, A. (1994). Memory for pictures and sounds: Independence of auditory and visual codes. *Canadian Journal of Experimental Psychology*, 48, 380-398.
- Trabasso, T., Stein, N. L., Rodkin, P. C., Munger, M. P., & Baughn, C. R. (1992). Knowledge of goals and plans in the on-line narration of events. *Cognitive Development*, 7, 133-170.
- van den Broek, P., Lorch, E. P., & Thurlow, R. (1996). Children's and adults' memory for television stories: The role of causal factors, story-grammar categories, and hierarchical level. *Child Development*, 67, 3010-3028.
- van den Broek, P. (1997). Discovering the cement of the universe: The development of event comprehension from childhood to adulthood. In P. W. van den Broek, P. J. Bauer, & T. Bourg (Eds.), *Developmental spans in event comprehension and representation*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Varnhagen, C. K., Morrison, F. J., & Everall, R. (1994). Age and schooling effects in story recall and story production. *Developmental Psychology*, 30, 969-979.
- Walma van der Molen, J. H., & van der Voort, T. H. A. (1997). Children's recall of television and print news: A media comparison study. *Journal of Educational Psychology*, 89, 82-91.
- Whitby, V. (1992). Teacher questioning in primary science. *Early Child Development & Care*, 83, 109-114.
- Whittaker, S. J., & Robinson, E. J. (1987). An investigation of the consequences of one feature of teacher-child talk for children's awareness of ambiguity in verbal messages. *International Journal of Behavioural Development*, 10, 425-438.
- Wimmer, H. (1980). Children's understanding of stories: Assimilation by a general schema for actions or coordination of temporal relations? In F. Wilkening, J. Becker, & T. Trabasso (Eds.), *Information integration by children*. Hillsdale, NJ: Erlbaum.
- Wong, B. Y. (1979). Increasing retention of main ideas through questioning strategies. *Learning Disability Quarterly*, 2, 42-47.