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CHILD VICTIMS, CHILD WITNESSES

Developmental Perspectives on Autobiographical Recall

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Over the last decade there has been increasing controversy over children's ability to give credible eyewitness testimony. As demonstrated by the chapters in this volume, researchers have been concerned with factors affecting the accuracy, suggestibility, and malleability of children's memory. But these questions must be placed in the context of children's developing memory abilities. Children's eyewitness testimony can be understood only in terms of how much children are able to remember about experienced events, how long they can retain this information, and how accurate their memories are. Most important, these abilities must be placed in developmental perspective; children of different ages have different memory skills, and we need to understand how these skills develop in order to be able to effectively evaluate children's testimony.

I have been investigating the development of children's memory for personally experienced events in a series of studies of children ranging in age from 2½ through 11 years. Different studies have examined different influences on autobiographical recall, including age of the child, time since the experience, who is asking the child for recall, and what kinds of memory questions and cues are asked. Each of these factors has important effects on what information is remembered on any given recall occasion. In this chapter, I review this research, as well as related research on autobiographical memory, both with adults and children, with an emphasis on issues relevant to children's ability to

give credible testimony. It is important to emphasize at the outset that the research reviewed here focuses on the recall of unique, single-occurrence events under conditions where no misleading or suggestive information is introduced. I return to these issues at the end of the chapter. In the first section, I discuss the amount and accuracy of recall; in the second section I focus on the consistency of information recalled across time and social contexts. In the third section, I try to integrate the developmental findings on accuracy and consistency, and present a model of the development of autobiographical memory. Finally, in the last section, I discuss the implications of this model for issues surrounding children's testimony.

AMOUNT AND ACCURACY OF AUTOBIOGRAPHICAL RECALL

The issue of how to conceptualize accuracy in autobiographical recall has a long and controversial history in psychology. Given the widespread acceptance that memory is at least partly reconstructive (Bartlett, 1932; Neisser, 1967), it becomes difficult to determine whether an individual is recalling the actual details of a particular experience or reconstructing what must have occurred based on general event knowledge. Moreover, an individual can be accurate as to the details of what occurred, but may interpret those events differently than other participants, or even than they themselves interpreted those events on previous recall occasions (Spence, 1988). A full discussion of these issues is well beyond the scope of this chapter. For purposes of this review, I operationally define accuracy of memory as agreement between the individual's recall and either an objective record of the event or social consensus from other participants of the event as to what occurred.

Using this definition, there is growing evidence in the literature that under certain conditions, adults can be remarkably accurate in what they recall about personally experienced events over extremely long periods of time (but see Barclay & DeCooke, 1988, for alternative interpretations). For example, both Linton (1982) and Wagenaar (1986) conducted diary studies of their own memories over several years. Essentially, these researchers kept written records of events in their lives and then tested their recall of these events at various retention intervals. Linton focused on recall of when particular events occurred, whereas Wagenaar would cue himself with one or more facts, such as a person who was present, the time of the event, the location of the event, etc., to determine if, and if so, how much, he could recall about

particular events. Not surprisingly, both researchers found that recall of events diminished over time but that what was recalled was quite accurate. These results indicate that exhaustiveness of recall and accuracy of recall are separable dimensions; although the overall amount of information recalled decreased over time, what information was recalled seemed to be recalled quite accurately. Moreover, as time since the event occurred increased, more memory cues were needed in order to recall any information about the event at all. Most intriguing, Wagenaar found that with enough cues, he was able to recall at least some information about every event tested over a 6-year period.¹

In a unique study examining autobiographical memory over several decades, Wagenaar and Groeneweg (1990) were able to compare concentration camp survivors' recall of their experiences within a few years of release to their recall 40 years later. Overall, the authors conclude that "[t]here is no doubt that almost all witnesses remember Camp Erika in great detail, even after 40 years. The accounts of the conditions of the camp, the horrible treatment, the daily routine, the forced labor, the housing, the food, the main characters of the guards, are remarkably consistent. Also the recall of smaller details were remarkably accurate in many instances" (p. 84). However, many survivors had difficulty recalling certain aspects of the event, especially the names of guards and fellow prisoners. Overall, then, research with adults indicates that as the time since experience increases, the amount of information recalled about an event decreases, and the number of specific memory cues needed to retrieve the memory increases. Nevertheless the accuracy of information recalled remains quite high.

A similar pattern emerges when we examine the developmental research. Gold and Neisser (1980) asked fifth, seventh, and ninth graders to recall various kindergarten experiences and checked the children's responses against the kindergarten teacher's records. Although only a small subset of kindergarten activities were recalled by fifth graders, what was recalled was accurate. Moreover, there was no further decrease in memory from fifth grade through ninth grade. These results suggest that several years after an experience, children's memories are accurate and stable, but they do not address how much information is forgotten during the first few years after an experience or whether more information could have been recalled if children had been provided with additional appropriate memory cues.

We investigated these issues in a study of children's memories for a kindergarten class trip to a museum of archeology (Hudson & Fivush, 1987). The trip was special in that children learned about archeology and archaeological tools, they dug for "artifacts" in a large sandbox, and they made clay models of what they had found. Thus,

this was an unusual and fun outing for the children. We asked children for recall immediately after the event, 6 weeks later, 1 year later, and 6 years later. This study was unique in that we had detailed knowledge of the event to be recalled and we had photographs of the event to use as memory cues. Moreover, we were able to compare children's memories immediately after the event to their memories at various retention intervals.

Not surprisingly, children were quite good at recalling the event immediately after the experience. They recalled an average of about nine main activities that had occurred, and their recall was quite detailed and completely accurate. Six weeks later, children recalled as much information in as much detail, and their recall was just as accurate as on immediate recall. After a year, however, children began to have more difficulty recalling the event. Only one child was able to recall this event when asked, "Tell me what happened at the Jewish Museum (the name of the museum)." But when given more specific cues ("Remember it was a museum of archeology?" and "Remember you dug in a big sandbox?"), all the children were able to recall accurate information about the event. Most interesting, with the introduction of these cues, children were able to recall as much information in as much detail as they had on the first two interviews. Six years after the event, children needed even more specific cues in order to recall the event (a few children did not recall anything until shown the photographs); moreover, children recalled significantly less information about the event after 6 years (about three of the major activities) but what they did recall was recalled as accurately and in as much detail as on the previous interviews.

These findings are consistent with the adult literature. First, children's memories for a personally experienced event remain accurate over an extended period of time. However, the amount of recall decreases. But with specific memory cues, children can recall as much even a year after the event occurred as they had immediately after the event. After six years, children need even more specific cues to recall the event at all, and even with these more specific cues, they may not recall as much information. The comparability of findings suggest that recall processes are similar in school-age children and adults, but they do not address whether children and adults recall equal amounts of information to begin with.

In a study directly comparing children's and adults' memories, Sheingold and Tenney (1982) asked subjects ranging in age from 4 years old through adulthood to recall the birth of their sibling. For all subjects, the sibling was born when the subjects were 4 years old. Thus the retention interval ranged from a few months for the youngest

subjects to many years for the oldest subjects. Somewhat surprisingly, neither age nor retention interval affected how much information subjects were able to recall about this event; all subjects were able to recall "an impressive amount" (p. 209) of information, and, again, most of the information recalled was accurate, as determined by mothers.

These results suggest that school-age children can recall as much about personally experienced events as do adults; note, however, that Sheingold and Tenney (1982) used a standardized interview with 20 specific questions concerning the experience. Thus, this is a highly cued memory task. Subjects of different ages would most likely have recalled different amounts of information if simply asked an open-ended free-recall question. A great deal of research indicates that younger children recall less information to open-ended requests for recall than do older children or adults (see Pillemer & White, 1989, for a review). In addition, Sheingold and Tenney only counted the number of questions responded to but did not consider how much information was recalled in response to each question. It seems possible that age or retention interval effects might have emerged if more sensitive measures of recall had been used. Even so, the data from this and the previously reviewed studies indicate remarkable continuity of memory from school-age children through adulthood. But what of even younger children? Are preschoolers able to retain and report accurate information about personally experienced events?

Todd and Perlmutter (1980) examined personal memories of 3- and 4-year-old children; memory was elicited during a play session in which the investigator queried the child about various types of events that many preschoolers have experienced, such as going to the circus or the zoo. Note that using this methodology, the investigators did not know beforehand whether the child had actually experienced any of these events, or, if the child had experienced these events, when they had occurred. Four year olds recalled somewhat more information on the average than did 3 year olds, but there were no age differences in accuracy; just over 70% of the information children recalled was accurate, as determined by parents.² This figure may actually underestimate preschool children's accuracy. Because the memory interview took place in the context of a play session, and children were not asked to "only tell what really happened," it is quite likely that children thought it was acceptable to include some fantasy material even if they knew that this did not actually occur. Moreover, children seemed to respond to questions about events they had not actually experienced by drawing on general knowledge learned from books and television (e.g., the child knows that one sees lions and tigers at the zoo, even if the child had never been to the zoo), and this material

appears to have been coded as inaccurate recall. Given these considerations, preschoolers' autobiographical memory appears to be quite accurate. Interestingly, amount of recall did not differ as a function of time since experiencing the event. However, because retention interval was not systematically varied in this study, it is difficult to draw any conclusions from this finding.

In a similar study, we asked 29- through 35-month-old children to recall personally experienced events (Fivush, Gray, & Fromhoff, 1987). But we asked children to report these events in a more formal interview situation and we explicitly asked children to recall events that they had experienced in the recent past (within the previous 3 months) and the distant past (more than 3 months ago). Events to ask each child about were determined in conversation with the mother immediately before the child interview. We examined both how much information children recalled as a function of time since experience and whether children needed more questions and prompts in order to recall more distantly experienced events.

As in the Todd and Perlmutter (1980) study, children in this study recalled as much information about distantly experienced events as about more recently experienced events. However, it should be noted that children only recalled information about approximately half of the events asked about overall. For those events for which children did recall information, children recalled an average of 12.89 units of information about more recently experienced events, and 12.30 units of information about more distantly experienced events. In fact, all the children recalled at least one event that occurred more than 6 months in the past. Most interesting, children did not need more specific questions in order to recall the more distantly experienced events. However, this result needs to be interpreted within the finding that children generally needed many questions and prompts in order to recall both recently and distantly experienced events. The interviewer asked an average of 13.8 questions about recently experienced events, and a mean of 11.73 questions about distantly experienced events, in order to elicit children's recall. Not quite half (44%) of the information children recalled was in response to the very first open-ended question asked, and the remaining recall tended to be drawn out in bits and pieces over the remaining series of questions. Finally, approximately 90% of the information that children recalled was deemed accurate by parents.

These findings demonstrate, first, that even quite young children are able to recall accurate information about personally experienced events over a considerable period of time. It is important to emphasize that in a situation in which preschool children understand that they are

being asked to recall what "really happened," they include very little inaccurate information. Moreover, even the figure of 90% accuracy may underestimate children's accuracy because information that the mother could not understand was deemed inaccurate for purposes of these analyses, and it is not clear whether this information was actually wrong. Second, it seems that preschool children need much more support from the adult, in the form of questions and prompts, in order to recall events than do older children and adults. However, because we studied such a restricted age range, developmental differences in recall could not be examined. Further, all children were asked about different events, and so amount of recall across children and retention interval was difficult to interpret.

In order to more fully explore these issues, we interviewed children about a family trip to Disneyworld (Hammond & Fivush, 1991). Children who went to Disneyworld when they were approximately 2½ years old were compared to children who went to Disneyworld when they were approximately 4½ years old. Half of the children in each of these age groups were interviewed 6 months after their Disneyworld experience and half were interviewed 18 months after the experience, using a structured interview format. Surprisingly, there were no effects of age or retention interval on how much children recalled. Children who were approximately 4 years old at the time of the interview and went to Disneyworld when they were 2½ years old recalled as much information as children who were 5 years old at the time of the interview, and 4½ years old at the time of their trip. On average, children recalled about 40 units of information, and virtually everything children recalled was accurate, as determined by parents.

However, there were two intriguing developmental differences. First, although younger children recalled as many propositional units as did the older children, older children's recall was significantly more detailed than the younger children's. Detail was operationalized as adjectives, adverbs, and adjective and adverb phrases (e.g., "I went on the cars that were way high up in the sky."). Older children included an average of 0.31 details per proposition, whereas younger children included only 0.23 details per proposition. Of course, it is not clear whether older children's recounts are more detailed because their memory representations are more elaborate or because they are linguistically more sophisticated than the younger children at time of interview. More fine-grained analyses of the data suggest that children who were older at the time of their trip to Disneyworld are recounting more details than children who visited Disneyworld when they were younger, regardless of age at time of the interview. Thus, the amount of detail in children's reports seems to be more a function of age at time

of experience than age at time of interview. This is a critically important finding because it begins to disentangle effects of age at time of experience, age at time of interview, and retention interval, which are obviously complexly intertwined in any study of children's autobiographical memory.

A second developmental finding was that older children recalled more information spontaneously than did younger children. That is, although younger children recalled as much information as did older children, they tended to recall only that information directly asked for, whereas older children would often provide additional information not directly queried for. Twenty-five percent of propositional units recalled by older children were recalled spontaneously, compared to 19% of the propositional units for the younger children. Note, however, that the majority of information reported even by the older children was recalled in response to a direct question.

In contrast to studies demonstrating the remarkable accuracy of preschoolers' autobiographical memories, Pillemer (as discussed in Pillemer & White, 1989) found that 3-year-old children did not recall a fire drill at school as well as 5-year-old children did. More specifically, 3 year olds seemed to confuse the temporal order of events such that they reported leaving the building and then hearing the alarm. Pillemer argues that because 3-year-old children did not understand the connection between the alarm and leaving the building, they were unable to comprehend the event as it was occurring and were therefore unable to recall it coherently. Obviously, events that are incomprehensible are difficult to recall even for adults (Bransford & McCarrell, 1977), but it must certainly be the case that younger children find more of the world incomprehensible than do older children and adults, and this may be a crucial limitation on their ability to recall certain events. Clearly, this is a question that deserves serious research consideration. It should be stressed, however, that younger children did not include inaccurate information in their reports of the fire drill; they simply reported the events that occurred in an incorrect temporal sequence.

Overall, the research indicates that even quite young preschoolers are remarkably accurate in their autobiographical recall. Moreover, preschool children retain information about personally experienced events over extremely long periods of time. A few studies even suggest that preschool children may recall as much information as older children in very structured interview situations (Hammond & Fivush, 1990; Sheingold & Tenney, 1982), although it is doubtful that preschoolers' recall is as detailed or as exhaustive as older children's recall. Moreover, preschool children do not recall as much information spontaneously as do older children and adults, and this seems to hold

regardless of how recently the event being recalled was experienced. Older children and adults can usually recall a great deal of information in response to a general free recall question about a recent event, but they need additional cues as time since the event increases. Preschool children, in contrast, need many questions and cues even about recently experienced events. It seems they need as many questions and cues about recently experienced events as about distantly experienced events. Thus, preschoolers might be able to recall a great deal of information about personally experienced events but they clearly need a great deal of external support, in the form of questions and cues, in order to retrieve this information.

The fact that young children do not report much information spontaneously, but rather are recalling information in response to specific questions, is particularly relevant to considerations of children's credibility as witnesses. The more specific the questions needed to elicit recall, the less credible the child witness appears; specific questions are often assumed to be suggestive, or even misleading, and are often contested forms of questioning for legal testimony. Yet relying solely on preschoolers' responses to open-ended questions about what happened may seriously underestimate their event memories. In order to most accurately and fairly assess the credibility of young witnesses, the legal system must consider both the strengths and the limitations of preschoolers' memories.

CONSISTENCY OF AUTOBIOGRAPHICAL RECALL

Consistency of recall refers to the extent to which subjects' recall is stable over time. This can be conceptualized in at least two ways. One conceptualization originates with psychotherapeutic concerns and evaluates the consistency of the affective and evaluative aspects of recall, as well as whether the same events are seen as significant in defining one's life over time (Adler, 1956). The focus is often on how recalled events form a life theme or narrative (Bruner, 1987; Spence, 1982), and whether the narrative is stable over time.

A second way of conceptualizing consistency is more circumscribed; the focus is on whether or not the same units and details of information are recalled across multiple occasions of recalling the same event. This is really the more critical conceptualization of consistency for issues concerning eyewitness testimony, in which people are required to report the details of the same target event when interviewed on different occasions, by different people, and in different

contexts. In this situation, consistency of recalled information is often taken as an index of accuracy of recall. That is, although no one expects perfectly consistent recall from one occasion to another, a great deal of inconsistency in recall is often taken as evidence of inaccurate or even fabricated recall (see Liepke, Manion & Romanczyk, Chapter 8, this volume, for a fuller discussion and empirical evidence on this issue). Unfortunately, very little research has explored this aspect of consistency of autobiographical recall. However, what little is known provides some provocative insights into the relation between accuracy and consistency and may contribute to understanding how autobiographical memory develops.

In Wagenaar and Groeneweg's (1990) study of concentration camp survivors' memories, they claim that victims' memories were "remarkably consistent" (p. 84), although they do not present any analyses of this issue. Similarly, in a study examining adults' memory for the space shuttle Challenger disaster, McCloskey, Wible, and Cohen (1988) assessed the consistency of recall 1 week after the disaster to recall 9 months later. Although recall decreased over this period, subjects were highly consistent in their recall; approximately 80% of the information each subject recalled was the same across recall occasions. In contrast, Harsch and Neisser (1989) found little consistency in adults' recall of the space shuttle Challenger disaster. Subjects were asked to recall how they heard the news of the disaster the day after the event and then again 3 years later. Assuming that subjects were accurate on the first interview, they computed a weighted accuracy score for information recalled 3 years later that ranged from 0 (no information recalled was accurate as compared to the first interview) to 7 (all the information was accurate as compared to the first interview). The mean weighted accuracy score was only 2.9; 11 of 44 subjects scored 0.

Reasons for the discrepant findings are not clear. A detailed comparison of the way in which recall was coded as accurate or inaccurate might clarify some of the differences. Also, the two studies assessed memory at very different retention intervals. However, given the research reviewed earlier on accuracy of recall across long retention intervals, it is not clear exactly how this may have affected the results. Another possible explanation concerns which aspects of the event were being recalled. Harsch and Neisser (1989) did not include recall of the explosion itself in their measures, but McCloskey et al. (1988) did. Thus, many of the inaccuracies in memory documented by Harsch and Neisser surrounded what may be considered more peripheral details of the event, such as what subjects were wearing when they learned of the news. Even so, these findings indicate that under certain circumstances, adults might be highly inconsistent in their recall. They

further indicate, in contrast to the research reviewed in the previous section, that adults might be highly inaccurate in their recall under certain conditions. One difference between the Challenger studies and the previously reviewed studies concerns the personal significance of the events being recalled. In the diary studies with adults and the interview studies with children, events were chosen to be salient life events, whereas the research on memory for the Challenger disaster preselects the event to be remembered. This event may or may not have any personal significance for the subjects. Still the discrepancy between the Harsch and Neisser findings and other research on adults' autobiographical recall is intriguing. Clearly, more research is needed that delineates the conditions under which adults are likely to be accurate and consistent in their recall.

Only one study has examined consistency of recall in school-age children. In the study of sixth graders' recall of a kindergarten trip to a museum discussed earlier (Hudson & Fivush, 1987), we examined whether children reported the same information at each of the recall trials. One year after the experience, about 62% of what children recalled had been recalled previously. Six years after the experience, 87% of what was recalled had been recalled previously. Looking only at the central activities occurring during the museum trip, these percentages rise to about 89% at the 1-year recall and 97% at the 6 year recall. These findings suggest that central aspects of an event are consistently recalled by school-age children, but recall of idiosyncratic or peripheral details may be more variable. Moreover, as time since the experience increases, recall of the more peripheral details drops out, but recall of the central aspects remains high, accurate, and consistent.

When we examine the data on preschool children, however, a very different pattern emerges. In one study, we examined consistency of preschool children's autobiographical recall over a 1-year period (Fivush & Hamond, 1990). Children were asked to recall several novel events that they had experienced, such as an airplane trip, a family outing to the circus, etc., on three occasions. During the first interview, conducted when the children were between 30 and 35 months of age, mothers were asked to discuss these events with their child. During the second interview, conducted 6 weeks later, a naive female experimenter asked children to recall the same events that they had previously discussed with their mothers. Approximately 14 months later, a different female experimenter asked the child to recall some of the same events that had been recalled on the previous interviews. Only those events that had not recurred in the interim were included; thus, Christmas and birthdays were eliminated, but events such as an airplane trip were included if the child had not flown an another

airplane during the previous year. All interviews were conducted in the child's home.

First and foremost, children at the third interview, who were now almost 4 years old, were able to recall as much information about events that had occurred before they were 2½ years old as they had recalled 14 months earlier. Again, this is strong evidence that young children are able to retain information about personally experienced events over extended periods of time. Moreover, about 90% of what children recalled at all three interviews was accurate, as determined by parents. However, and perhaps most interesting, children were remarkably inconsistent in what they recalled at each interview. A mere 10% of the information children recalled on the second interview was the same as information the children had recalled on the first interview 6 weeks earlier. About 1 year later, on the third interview, 26% of what children recalled about these events was information that had been recalled on either of the first two interviews. Again, it is important to emphasize that virtually all of the information children recalled was accurate, as determined by parents. In other words, children are recalling different, but still accurate, information each time they are asked to recall an event.

Why might preschool children be so much more inconsistent in their recall than are older children and adults? One possibility is that the type of information that children are recalling changes as a function of development. Nelson (1988) and Hudson (1986) have both argued that young preschoolers focus on routine and general information, that is, on information that is similar across events, and thus allows the most predictability for future occurrences. As children build up their general knowledge about events, they begin to focus more on the special and distinctive aspects of events, aspects that make a specific event different and unusual. In fact, we found that children during the first two interviews, occurring when the children were 30 to 35 months of age, recalled as much information about the routine or typical components of these unusual events, such as information about eating and sleeping routines, as about the more distinctive components of the events. At the third interview, however, when the children were almost 4 years old, they reported significantly more distinctive information than they had on the previous interviews, and significantly more distinctive information than typical information. Thus, there is some suggestion in these data that there is a shift from recalling routine, typical information to recalling more distinctive information about events across the preschool years.

A developmental shift, however, cannot account for the high inconsistency between the first two interviews, which were only 6

weeks apart. One of the major differences between these two interview situations is that children were asked about these events by their mothers during the first interview and by a stranger during the second interview. This changes the social context of recall in several interesting and potentially important ways. On the one hand, mothers have usually experienced these events with their child and thus they are able to ask quite specific questions and provide specific memory cues. On the other hand, because the mother has experienced these events with the child, the child may view this situation as a memory "test." When the stranger asks the child what happened, however, the child may view this as a real and legitimate request for information.

This distinction rests on the assumption that it is some aspect of the social demands of the situation that vary between mothers' and strangers' conversations that lead to children's inconsistent recall. However, there is another aspect to what is happening in these conversations that is important to consider. Adults, in questioning children about past events, are also providing a good deal of information about what occurred during those events. This is especially true in the case of mothers, who experienced the events with their children. For example, in questioning her child about visiting her grandparents, one mother asked, "Remember when we went to visit Grandma and Grandpa and we took a long drive in the car and you looked out the window and what did you see?" Clearly, mothers are not only questioning their children; they are also informing their children about what occurred. Even strangers do this to some extent. For example, in questioning a child about last Christmas, the stranger might ask, "Did you get any presents under the tree?" This question provides information that there were probably presents and even that there was a tree. It is possible that children are incorporating adult-provided information into their subsequent recall of the event. That is, children may be learning *what* to remember. If this is the case, inconsistent recall can be attributed to children changing the information "recalled" from what they themselves remember to what the adult has highlighted about the event.

This is obviously a critical issue when children are being asked to testify. Legal testimony invariably involves multiple interviews, and if children are incorporating information provided by the interviewer during one session into their own subsequent recall of the event, then their ability to give accurate testimony must be seriously questioned. Further, in many cases in which children are being asked to testify, it is the mother who initially questions the child. It is imperative to determine if the kinds of questions the mother asks and, especially, the kind of information she provides, alter the child's subsequent recall.

Hudson (1990) examined some of these issues in a study of mothers conversing about past events with their 24- to 30-month-old children. Mothers asked about the same four events during four different sessions, a week apart. Two weeks after the fourth session, a stranger asked the child to recall the same four events. Hudson examined both how much consistent information mothers provided over time and how much consistent information children recalled. At the second mother-child session, 54% of the information provided by mothers was new information; by the fourth session, only 32% of information provided by mothers was different from what they had provided on previous interviews. For children, just over 50% of the information they recalled on each interview was different from information recalled on previous interviews. When the children then recalled these events with the stranger, 36% of the information they recalled had not been reported by either the mother or the child in the previous four interviews, but this figure was not broken down into whether the information had been previously provided by the mother or the child. These results support the previous finding of high inconsistency in preschool children's recall. They further suggest that mothers may be asking children about different aspects of an event at each interview, accounting for the low consistency across interviews for mothers' contributions as well as the low consistency for children's recall. Thus, children may be inconsistent in what they recall because mothers are inconsistent in what they ask for. However, this was not directly examined in these data. Moreover, these data do not directly address the issue of whether children are incorporating information provided by the adult into their subsequent recall.

In order to explore these possibilities in more depth, we examined differences in children's recall as a function of conversational partner (Fivush, Hamond, Harsch, Singer, & Wolf, 1991). Thirty- to 35-month-old children were asked to recall the same personally experienced events on two occasions, 6 weeks apart. Children were either interviewed by their mother on both occasions (mother-mother condition), by the same female stranger on both occasions (stranger-stranger condition), or by their mother on the first occasion and by a female stranger on the second occasion (mother-stranger condition). Again, all interviews were conducted in the child's home. We were interested in examining two questions. First, are adults consistent in the questions they ask about the same events across interviews? If so, are children consistent in their responses to these questions? Second, do children incorporate information provided by the adult during one recall occasion into their own recall of the event on a subsequent recall occasion?

As in all other studies of preschool children's recall, the information recalled was quite accurate across all interviews. But again, children's recall was quite inconsistent from the first to the second interview. Overall, about two thirds of the information that children recalled on the second interview was new and different information than had been recalled on the first interview. Only about 20% of information that children recalled on the second interview was the same information that they themselves had recalled on the first interview, and about 12% of what children recalled on the second interview was information that the adult had provided on the first interview. These patterns were virtually identical across the three conversational partner conditions. These results indicate two things. First, preschoolers' inconsistency in recall is just as high when recalling the event with the same person over time as when recalling the event with different people over time. Second, children show little tendency to incorporate information provided by adults into their own subsequent recall of events.

In order to examine the effects of consistent questioning in more depth, we first classified all questions that adults asked as either general, open-ended questions (e.g., Can you tell me about last Christmas?) or specific questions (e.g., What did you eat that was special last Christmas?). Overall, adults asked many more specific questions (a mean of 34.63 per event) than general questions (a mean of 15.40 per event). Further, children were significantly more likely to recall information in response to a specific question than in response to a general question. We next examined whether children were likely to give the same response if the same question was asked on both interviews. Children tended to give the same answer to the same question in the mother-mother interviews but not in either the stranger-stranger or the mother-stranger interviews. But this was because the most likely occurrence was for the child to respond to a question on one of the interviews but not respond to that same question on the other interview.

Overall, this research suggests, first, that children are recalling information in response to specific questions, and, second, that there may be some tendency for young children to recall the same information when asked the same question if they respond to that question on both recall occasions. Because children are recalling information in response to specific questions, if the same questions are not asked on different recall occasions, their recall will appear quite inconsistent. At the same time, it is important to emphasize that children are not incorporating very much information provided by the adult during questioning into their subsequent recall of the event.

INTEGRATING ACCURACY AND CONSISTENCY: A MODEL OF THE DEVELOPMENT OF AUTOBIOGRAPHICAL MEMORY

Several conclusions can be drawn from the research on children's autobiographical recall. First, even quite young children recall accurate details about personally experienced events over extended periods of time. Second, younger children need more social support, in the form of specific questions, prompts, and cues from adults in order to recall information than do older children and adults. Third, young children can be surprisingly inconsistent in the information they recall about any given event on different recall occasions. Together, these findings suggest that young children are encoding a great deal of information about events, but they have difficulty retrieving that information in an interview situation.

Recalling an event requires more than simply reporting details of what occurred. In order to provide a coherent account, one must report the "who, what, where, and when" of an event (Neisser, 1982); that is, one must tell the event in a culturally conventionalized narrative form. The research reviewed here suggests that children may recall accurate information about personally experienced events, but they are not yet able to recount that information in a canonical narrative. But note that the narrative form provides more than coherence for the listener; it provides a structure to guide retrieval of information as well. Thus, one begins a narrative with setting information (where and when the event occurred) and character introduction (who participated), continues with referential information (the component activities) usually leading to a climax, followed by an evaluation (the affective meaning of the event) or resolution (Labov, 1982; Peterson & McCabe, 1983). Older children and adults are able to use the canonical categories and sequence of an event narrative to cue themselves as to what information they should report in what order in their recall. But younger children do not. How might this skill develop?

In contrast to the research reviewed here indicating that young children are not learning *what* to remember in conversation with adults, there is a growing body of research suggesting that children are learning *how* to remember in these adult-guided conversations (Eisenberg, 1985; Fivush, 1991; Hudson, 1990; McCabe & Peterson, 1991). More specifically, adults are implicitly modeling the canonical narrative forms in the structure of their questions and statements during conversations about past events. Children of mothers who use more sophisticated narrative forms in these early conversations become better narrators than do children of mothers using less

sophisticated narrative forms. However, regardless of individual differences in mothers and children, children are developing narrative skills across the preschool years, and by the age of 5 or 6 are able to recount a fairly coherent narrative about a personally experienced event (Hudson & Shapiro, 1991; Peterson & McCabe, 1983). Notice that by this age, children also need fewer questions and prompts from the adult in order to recall.

What these findings suggest is that preschool children, who do not yet have control over canonical narrative forms for recounting the past, are dependent on the adult's questions to cue their recall. Because they have only rudimentary structures available for retrieving the information on their own, they rely on the structure provided by the adult. Thus, preschool children will recall the information asked for but little more. Moreover, because they are relying on external cues to guide their recall, their recall will be inconsistent if the external structure is inconsistent. This explains how children can be accurate and yet so largely inconsistent in their recall.

But there are two additional developmental differences that need to be considered. First, preschool children probably do not recall as much information as older children and adults. Although a couple of studies have found that preschool children may recall as much as older children under very structured interview situations (Hamond & Fivush, 1990; Sheingold & Tenney, 1982), there is a great deal of research indicating that preschool children simply do not recall as much information as do older children (see Pillemer & White, 1989, for a review). Again, this may be due to lack of external support for recall. If preschoolers are dependent on external guidance for retrieval, they will be at a disadvantage in situations that do not provide such assistance. This is clearly an important memory limitation for younger children; however, if provided with enough external support, it is possible that preschoolers can recall as much information as older children. Additional research is needed to clarify the locus of the developmental differences in amount of recall.

Second, preschool children may focus on, and therefore recall, different aspects of an event than do older children or adults. As discussed briefly above, preschool children tend to report as much information about the typical or routine aspects of events as about the unique or distinctive aspects of events. It should be noted that even adults recall a good deal about routine aspects of novel events (e.g., Barsalou, 1988), but preschool children seem to focus on routines to a greater extent. Again, this may be a function of the available structures for recall. Young children are in the process of building up knowledge about how the world usually works. These generalized event

representations, or scripts, allow children to anticipate and predict future events, but they also provide a framework for recalling past events (Nelson, 1986). Younger children seem to be more "script-dependent" than older children; that is they seem to place even unusual and distinctive events in the context of more familiar routines.

As children become older and accumulate more experience with the world, they begin to focus more on the distinctive aspects of events, those aspects that make the event interesting and ultimately reportable. Note, however, that scripts continue to provide the background structure for comprehending and reporting events (Hudson & Shapiro, 1991). That is, scripts provide the shared cultural knowledge necessary for understanding and interpreting events, both as experienced and as recounted.

Thus, the development of autobiographical memory across the preschool years seems to involve two complementary processes. First, children are learning the canonical narrative structures for recounting an event. These structures allow children to give a coherent account of a past event, and also provide an internal retrieval guide. Thus, children become less and less dependent on adults' questions and prompts in order to recall information about personally experienced events. Second, children are shifting focus from typical to distinctive aspects of events. Thus, the first narrative form they have available conforms to a script; they report what usually happens. With increasing experience, the script fades into the background, and children begin to focus on the unusual aspects of events. They can now report a more interesting story about past experiences, focusing on what was unusual, distinctive, and ultimately memorable about each event.

IMPLICATIONS FOR CHILDREN'S TESTIMONY

The single most important finding to emerge from the research on children's autobiographical memory is that children's recall can be quite accurate. Moreover, preschoolers seem to be as accurate as older children and accuracy does not appear to diminish over a period of years. These are clearly important considerations for assessing children's abilities as credible witnesses because legal cases often stretch over long periods of time. Moreover, children's recall remains accurate over multiple recall interviews, again suggesting that children are able to give accurate testimony in legal situations that involve the telling and retelling of events. An intriguing wrinkle to this finding, however, is the high degree of inconsistency in preschoolers' recall.

Thus, it is imperative to keep in mind that inconsistent recall does not necessarily mean inaccurate recall, especially for very young children. Because young children are dependent on adults' questions to guide their retrieval, they will often not recall information not asked for directly. Thus the questions asked will largely determine the information recalled when interviewing preschoolers about personally experienced events.

Moreover, preschool children seem to need fairly specific questions in order to recall information. Yet the research further indicates that preschool children do not tend to incorporate information provided in adults' questions into their own recall of the event. Thus, although interviewers may need to ask specific questions in order to elicit recall from young children, the specificity of the questions asked does not seem to compromise subsequent recall. These are important qualifications to bear in mind for two reasons. First, as mentioned earlier, inconsistency in recall is often taken as an index of inaccuracy. Yet the results reported here suggest that this is simply not true in evaluating young children's recall. Inconsistency seems to be more a function of the questions that young children are asked rather than the inability of young children to recall accurately. Second, specific questions are often assumed to be suggestive or misleading. But while the research indicates that young children need reasonably specific questions to recall, it does not seem to be the case that they incorporate information provided in these specific questions into their subsequent recall. Thus, the research suggests that preschoolers may indeed be able to give quite accurate reports of personally experienced events over multiple recall interviews and long periods of time.

However, there are two important limitations to these conclusions. First, only recall of unique, single-occurrence events was examined. As already mentioned, there is overwhelming evidence that young children and adults form generalized event representations, or scripts, for recurring events (see Nelson, 1986, for a review). One of the consistent findings in this literature is that recall of single instances of a scripted event can be extremely difficult. This is related to but different from the argument presented earlier about preschoolers' tendency to focus on routine aspects of events. That argument stated that even unique, single-occurrence events will be understood in terms of their similarities to scripted events. Here, the argument is that when trying to recall a specific instance of an event that has been experienced many times, both children and adults have difficulty distinguishing any one occurrence from all other occurrences.

Moreover, there appear to be developmental differences in how easily one can differentiate a single instance from the script. Preschool

children are more likely to simply give a script report when asked about a single instance than are older children or adults (Hudson, 1986; Hudson & Nelson, 1986). This is not so much a question of accuracy; the script is accurate with reference to the specific instance. Rather it is a question of differentiation and detail. Preschool children seem to have more difficulty distinguishing what happened during any one instance of a recurring event from what usually happens during this event (see Farrar & Goodman, 1990, for an extended discussion of this issue). This has obvious implications for children's testimony, especially in cases of abuse that often recur and become scripted events. In these situations, young children may be able to recall what usually happens, but may have particular difficulty recounting a single instance of the event.

The second major limitation has to do with the social context of recall. In the research reviewed in this chapter, the interviewers did not present any suggestive or misleading information to the children, nor did they have any personal stake in what the children recalled. Clearly, in cases of testimony, the way in which these factors affect children's recall needs to be considered. Preschool children seem to be more sensitive to suggested and misleading information than are older children and adults (see Ceci, Toglia, & Ross, 1987, for a review). This may seem somewhat surprising given the findings reviewed here that preschoolers do not incorporate information provided by others into their own recall. One possible explanation of this discrepancy concerns the types of events children are asked to recall. Experiments in which children are given misleading information about personally experienced events, as opposed to misinformation about stories, tend to find less of an effect of misleading information. A second possible explanation concerns the significance of the event to the child. Events that are extremely personally important are probably less prone to suggestion than are less important events, and the real events of a child's life are probably more significant than story events and events constructed for the laboratory. Finally, misleading information is more likely to influence future recall when it is about the peripheral details of an event rather than more central aspects; in the studies reviewed here, children were rarely asked about peripheral details of the events (see Goodman, Rudy, Bottoms, & Aman, 1990, for a discussion of these issues). All of these reasons need to be considered when evaluating possible effects of misleading information on children's testimony.

Finally, the motivations of the interviewer need to be considered. In the studies reviewed in this chapter, children were certainly encouraged to recall events but they were not cajoled. If they could not recall anything about a given event, the interviewer, whether mother

or researcher, simply went on to ask about a different event. There was obviously wide individual variability in how many events asked about were recalled, but on average, young preschoolers seem to recall information about approximately half of the events requested.³ This is clearly a very different situation than eliciting recall in a testimony situation, in which interviewers may pressure children to recall information about a specific event. In this situation, it is conceivable that young children may fabricate information in order to appease an insistent adult.

Even given these limitations, it is important to stress the mnemonic competencies of preschool children. There is widespread belief that preschoolers are incapable of recalling their experiences accurately, and also that they cannot recall these experiences over long periods of time. The research indicates that this is simply not so. Although there are probably developmental differences in the amount of information recalled, and certainly in the control of the retrieval process, preschool children can and do recall accurate details about personally experienced events over a period of years. Under what circumstances and to what extent memory can be distorted or misled are certainly important questions. But these questions must be placed in the context of young children's remarkable abilities to recall accurate information about personally experienced events over extended periods of time.

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NOTES

1. Note that in these studies all of the provided cues were accurate to the events being recalled. The ability to provide such cues may be critical for accurate long-term recall of personally experienced events. This issue is well beyond the scope of this chapter, but see Barclay and DeCooke (1988) for a discussion.
2. Having parents determine whether their child's recall is accurate is similar to a recognition test of memory rather than a recall test. That is, the parent need only give a "yes" or "no" response to the information that had been provided by the child. It is entirely possible (in fact quite likely) that if asked to recall the event, parents and children would report different information.
3. The exception to this pattern is the study on children's memories for their trip

to Disneyworld. In this study, all the children were easily able to respond to questions about this one experience, although they varied in the specificity of questions needed to elicit recall. Reasons why this event may have been so easy to remember are discussed in Hamond and Fivush (1990).

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