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## The influence of prior knowledge on children's eyewitness memory, identifications, and suggestibility.

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THE INFLUENCE OF PRIOR KNOWLEDGE ON CHILDREN'S EYEWITNESS  
MEMORY, IDENTIFICATIONS, AND SUGGESTIBILITY

A Thesis Presented

by

CHRISTINE M. RICCI

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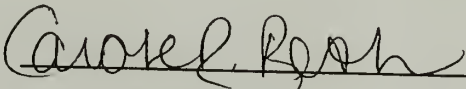
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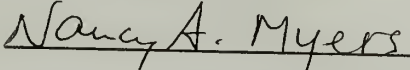
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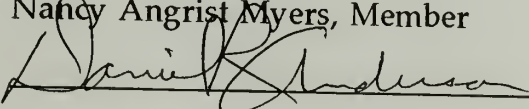
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ABSTRACT

THE INFLUENCE OF PRIOR KNOWLEDGE ON CHILDREN'S EYEWITNESS  
MEMORY, IDENTIFICATIONS, AND SUGGESTIBILITY

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To examine the influence of script structure on children's eyewitness memory, 40 5-year old children participated in either a birthday party event or a novel parallel play session. In both events, a male intruder entered the room and stole a box. One half of the children received an immediate memory interview and identification task, and a second interview and identification task two weeks later. The other children were only interviewed and given the identification task two weeks after their participation in the event. It was predicted that children's memory would be accurate even after a delay for the aspects of the event that corresponded to their prior knowledge. However, they would be more likely to make errors in the direction of what their script knowledge would have expected to have occurred at the event. Thus, children with a script structure would be more suggestible to misleading questions that encourage them to report script-consistent information. Results indicated that children at both the immediate and delayed interviews were better able to answer questions about the event than questions about the intruder. At the delay interview, children in the birthday party event recalled more about the event than children in the play session. Although no differences were found between the birthday party and play groups for recognition memory, having a script structure aided recall memory. Further, children with a script structure

were not more suggestible on misleading questions. In addition, children who had experienced two interviews (immediate and delayed) performed better on both the memory questions and the lineup identification task than those children who had only the delayed interview. Thus, it appears that script structure supports memory enabling children to be accurate witnesses even after a delay.

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## CHAPTER 1

### INTRODUCTION

Increasingly, young children who have witnessed crimes are being called upon to provide testimony in legal proceedings. With the increasing role of child witnesses, questions have been raised as to the accuracy of children's memories and identifications, and their susceptibility to suggestibility. Although much research is currently being conducted to investigate this problem, little consensus has been achieved. On the one hand, children are viewed as accurate and resistant to suggestion; on the other hand, children are believed to be inaccurate and vulnerable to misleading information. Experimental studies have had mixed results, lending support to both sides of the issue without devising a theoretical framework to explain and predict under what conditions children are accurate and resistant to suggestion. Most studies of child eyewitnesses have considered three major areas: the amount that children recall, the accuracy of their recall, and their susceptibility to suggestion.

With regard to the amount that child witnesses remember, a number of researchers have found that when children are not pressured to distort reports, even young children can provide useful, relevant, and accurate information (Ceci & Bruck, 1993; Marin, Holmes, Guth, & Kovac, 1979; Poole & Lindsay, 1994; Poole & White, 1991). However, adults provide substantially more information than children on memory questions (Poole & White, 1991). King and Yuille (1987) found that younger children were just as accurate as older witnesses, but they simply said less in their free reports. Thus, it seems as if young children provide fewer details overall and therefore they are most likely to require the use of specific questions and probes to uncover the information.

There is less consensus on the accuracy of children's memory for eyewitness events. Although children provide less information they can be as

accurate as adults in what they do recall (Beal, Schmitt, & Dekle, 1995; Dekle, Beal, Elliott, & Huneycutt, in press; King & Yuille, 1987). In fact, in the first session of Poole and Lindsay's (1994) experiment, preschool children were found to be highly accurate if questioned non-suggestively about an engaging experience after a short delay. Further, it is argued that across-session repetition of questions generally delays forgetting for subjects of all ages and does not increase errors (Poole & Warren, 1995; Poole & White, 1994). However, other research shows that recall can be affected by delay (Cassel, Kennedy, & Bjorklund, 1994; Pipe & Wilson, 1994). Also, the type of question asked can affect accuracy (Laumann & Elliott, 1992). Consider that Poole and White (1991) found that both children's and adults' responses to specific questions were less accurate than their responses to open-ended questions.

In addition to questions about the amount and accuracy of children's recall, researchers have been especially concerned about children's susceptibility to misleading information. Because children do not spontaneously recall as much information as adults, they are more dependent on specific questioning. These specific questions may affect the child's memory or encourage the child to report information that did not actually happen. A number of studies have found that children are more suggestible than adults (Cassel et al., 1994; Ceci, Ross, & Toglia, 1987; King & Yuille, 1987; Lindsay & Johnson, 1987). Poole and Lindsay (1994) found that children's errors did not occur as the result of specific questions, rather errors occurred after exposure to misinformation. However, a number of other researchers have failed to find evidence of age differences in suggestibility (Marin et al., 1979; Parker, Haverfield, & Baker-Thomas, 1986). Such inconsistencies in the children's suggestibility literature suggest that a number of forces may be playing a part in affecting children's memory. These may include both social and cognitive processes. This research focuses on the

cognitive factors whereby witnesses confuse information introduced during the interview, via misleading questions, with the original event (Ceci et al., 1987; Johnson, Hashtroudi, & Lindsay, 1993; Reyna & Titcomb, 1994).

### Children's Eyewitness Memory: Background

Previous work has not clarified the issue of children's suggestibility. The present research outlines such a framework to try to explain how children process information about a witnessed event and what factors affect their long term retention of that information. The specific focus is on how the nature of the event may influence children's memory.

With regard to the nature of the event, there have been two major approaches to the study of children's eyewitness memory: familiar or scripted events, and novel or unexpected events. In the case of children's memory for familiar events, studies indicate that with repeated encounters, children's recall becomes more general and abstract (Farrar & Goodman, 1990; Fivush, 1984; Hudson & Nelson, 1986; Murachver, Pipe, Gordon, Owens, & Fivush, 1994). Children also develop expectations and inferences about what will happen and, with repeated experience, children's memory for a particular episode may become less accurate and less detailed. Saywitz (1987) argues that script memory, which has been proposed to influence which information is selected to be remembered and how recall is organized, might affect children's eyewitness memory. In her study, children listened to a story describing a crime and later were asked questions regarding their memory for the event. She found that younger children were more likely at both immediate and delayed testing to produce recall errors by adding information not in the original story. This might be due to children's difficulty in distinguishing between what did occur and what might have occurred based on their expectations and schemas. Thus, script

memory seemed to affect children's memory for a crime event. However, the event was presented in a story, rather than as a real life event, so its relevance to children's eyewitness memory is unclear.

On the other hand, researchers who study children's memory for novel events have found that children's recall is often quite accurate even over long periods of time (Clubb, Nida, Merritt, & Ornstein, 1993; Merritt, Ornstein, & Spicker, in press; Ornstein, Gordon, Baker-Ward, & Merritt, in press; Ornstein, Gordon, & Larus, 1992; Ornstein, Larus, & Clubb, 1991; Warren & Swartwood, 1992). However, in some cases only parental reports are available to check accuracy of the child's recall. In addition, some researchers argue that children may indeed have prior knowledge of or expectations about the event and therefore the event was not completely novel (Warren & Swartwood, 1992).

Little research has been done linking children's memory for events and their underlying script knowledge. Ornstein, Shapiro, Clubb, Follmer, and Baker-Ward (1995) examined the impact of knowledge on children's memory for a specific medical experience. Their findings suggest that children's prior knowledge positively affects their memory performance. They hypothesized that knowledge impacts the encoding, storage, and retrieval of information. Children who have background knowledge are better able to understand the event they are experiencing. This allows them to more easily classify the event and use the script as a retrieval guide. Children use their script knowledge as a framework to mark the presence or absence of items and actions that would be expected in the event. Thus, children's memory is not a general representation, rather the specific experience is retained with children able to correctly report deviations from the script. However, a limitation to the Ornstein et al. (1995) work is that they were not able to manipulate children's script knowledge. One goal of the present study was to examine how scripts influence children's memory and



suggestibility by measuring children's memory for a scripted activity versus a novel parallel event. Information may be recalled accurately at immediate testing but distortions after a delay may occur as a result of the information provided at the first interview. Errors should also be observed in the direction of the children's prior knowledge expectations.

To summarize: the goal of the proposed project was to examine how children's prior knowledge of an event influences their memory and suggestibility. In the following sections, I will examine the literature on children's memory for events, with a particular focus on script theory.

### Children's Memory for Events

As noted above, researchers have relied on both novel events and familiar events in studies of children's memory. Previous work has demonstrated that children's familiarity with an event may influence the amount they remember, the degree of detail, and their resistance to suggestion. Children have been thought to develop schematic representations for familiar events. These script representations may affect the way in which children recall a particular episode.

### Theory of Script Memory

The idea of prior knowledge was first introduced in Bartlett's (1932) theory of remembering. He was concerned with how past experiences influence present reactions via knowledge structures or schemas. On the basis of Bartlett's theory, Schank and Abelson (1977) extended this notion to maintain that in order to understand a situation, a person must have experienced that situation before. In their script pointer + tag hypothesis, they assert that repeated events are remembered in terms of a general event schema, called a script. When an event is encountered again, the activated memory trace points to the script

representation for that event and forms specific memories only for the deviations from that script. Thus, events are remembered in terms of their similarity to and differences from prior experiences.

Graesser, Gordon, and Sawyer (1979) found evidence to support the script pointer + tag hypothesis, as adults' memory recognition was better for atypical actions in a story than typical script actions. This suggests that the representation for the specific event points to the script representation that best matches it. The various script actions are then incorporated into the general script, but atypical actions that do not fit the script are tagged as separate entities. Because it is a separate memory, details are maintained and the item can be discriminated from other items.

Schank (1982) then extended his theory to explain how the event representation becomes abstract and generalized. He proposed a dynamic model of memory wherein people create and modify structures on the basis of their personal experiences. Thus, the script theory involves a process of expectation and expectation failure. When a scene is encountered, it is matched to an existing representation which carries the expectation that certain parts of the scene will be present and that certain events will precede and other events will follow that scene. If the expectations are met, the new trace is fused with the script. If expectations fail, the deviations are marked and tagged with the script. If expectations repeatedly fail, the person must create a new script or generate a new sequence. Thus, scripts are temporally organized general representations of an event or sets of expectations about what will happen in a given situation. Script knowledge can also be categorized as hierarchical in nature, general in form, and temporal causal in structure.

Evidence for Script Memory in Children. According to Schank (1982), the first necessary component for a script is that the part must imply the whole and yet the whole must be more than the sum of its parts. When a familiar event is encountered, it is hypothesized that people use their knowledge to make inferences that help them 'fill in the gaps' of their memory or predict future events. Support for this prediction was obtained by Slackman and Nelson (1984), who found that children made meaningful substitutions for items in a story recall task. Additional support comes from Paris and Lindaur (1976) who found that children and adults performed similarly on tests of inferences that rely on schematic processing. One difference is that younger children are less able than older children to distinguish inferred information from information that was actually encountered (Beal, 1990; Brown, Smiley, Day, Townsend, & Lawton 1977; Hudson & Nelson, 1983). Yet all in all, it seems that young children are able to infer script-based items and will falsely recognize typical script items even when the items were absent from the original material.

Scripts also have a generalized structure. Again, there is evidence that, like adults, children have generalized event representations. Consider that subjects as young as three years change the form of their language to indicate the narration of a script verses a specific episode (Hudson & Nelson, 1986; Nelson, Fivush, Hudson, & Lucariello, 1983). In fact, children's event memory becomes even more generalized with the passage of time and experience. Children's recall of a story over a delay period contained fewer detailed actions and more general acts as time passed (Slackman & Nelson, 1984). Also, the more exposure children had to episodes of an event, the more abstract their recall became (Slackman & Nelson, 1984; Myles-Worsley, Cromer, & Dodd, 1986). Thus, it seems that memory for specific details decreases over time and/or with repeated episodes, but the gist remains (Mandler, 1983). To describe this process, Nelson

and Gruendel (1981) developed the concept of the Generalized Event Representation (GER) which is formed from repeated experiences with the same event. Variations in familiar experiences open slots in the script protocol so that a general and standard script develops with slots to be filled in with specific items on each instantiation. The slots allow the script to account for and generalize to similar events that just differ in details. However, little work has been done examining what happens when a slot is left empty or when an action occurs within the script framework that does not have a slot at all. Repeated deviations may eventually get incorporated within the script representation, however, a single occurrence of a deviation from a well-formed script may not be remembered well.

The third component of a script is that it must have a temporal-causal structure (Mandler, 1983). Bower, Black and Turner (1979) found that adult subjects who read misordered items in a text reordered the items in the direction of their normal location in the script when recalling the story. Similarly, children as young as preschool can accurately sequence events; and they also repair temporal violations by omitting the acts that were presented out of order in the text in their recall (Hudson & Nelson, 1983). Slackman and Nelson (1984) found that preschool children were able to recall information in accurate sequence, indicating that their schema had a temporal organization. Given this evidence, it can be assumed that children's memory for familiar events is based on knowledge structures that are general in form, temporally and hierarchically organized, consistent over time, and socially accurate (Nelson, 1981).

Development of Scripts in Children. In his model of children's script development, Schank (1982) proposes that children learn scripts at a very early age. Yet there is evidence that although young children's event narratives are

structured and organized similar to adults' scripts, there are still some developmental differences. Specifically, the complexity of the representation changes with age. Older children are more likely to report more information (Adams & Worden, 1986), more complex acts, more elaborative narratives, and more conditional statements (Fivush, 1984). One possibility is that older children just seem to have a better grasp of narrative styles (Hudson & Nelson, 1983) perhaps due to increased verbal ability. Another possibility is that older children have a better ability to use their schematic representation to remember specific information, particularly script atypical information. Thus, having a script might allow children to recognize when something unusual occurs. In the case of an eyewitness event, if the event matches an established script, children should have good memory for the typical items, but may not recall the details and omit the atypical items. More specific predictions for younger children are reviewed next.

Children's Memory for Novel Episodes. One possibility is that if an event is unfamiliar, it might be especially memorable to young children. This could be due to tagging the event as deviant from prior scripts. Hudson (1990) argues that young children can use their developing script knowledge to help themselves remember real events that do not yet fit a script. She found that when children's memory for real world events (as opposed to stories) was tested, there were not any age differences. She had children participate in either a single episode or repeated episodes of a creative movement workshop. Preschoolers were not more script dependent than older children suggesting that even young children may be able to retain good memory of specific episodes. Her work suggests that in the case of a real life eyewitness event, young children should be able to remember the novel event accurately without prior knowledge intrusions.

An alternative possibility is that if an event is unfamiliar, young children will find it difficult to remember because it cannot be easily assimilated to a script or tagged as deviant. In their work on autobiographical memory, Nelson and Hudson (1988) devised the General Functional Model of children's script development. They argue that an episode becomes encoded and represented in memory as a general script. When an episode fits the criteria of a particular script, it becomes fused with it and subsequently unrecoverable as an episodic memory. Only when the episode does not fit the script, or when memory strategies such as rehearsal are evidenced, is it retained as a specific memory. In young children, the general script interferes with the memory of a specific episode.

In the case of unusual, unfamiliar events that cannot be assimilated to a script, Nelson et al. (1983) maintain that one must still already have a script in order to differentiate the event as one that is worth remembering in specific detail. The memory system in young children is quite adept at processing and generalizing information to form a script; however, it is through the use of already established scripts that older children and adults are able to tag memories as memorable and retain them as episodic. Adams and Worden (1986) found that 3-4 year olds were able to discriminate atypical material from material they had just read or heard, but 7-8 year olds showed a much greater discrimination ability in that they were able to recognize both typical and atypical items from the target story. Young children are still in the script formation stage and are not yet able to control processes enough to tag specific events as memorable. Therefore children's scripts and episodic reports are similar in content and generality, but differ in terms of language used (verb tense) and length (scripts are longer) (Hudson & Nelson, 1986).

According to this view, children may have trouble recalling information because they did not have a way to classify the event while they witnessed it. Their lack of understanding prohibited the "tagging" of the event details as worthy of remembering. Consider Fivush's (1984) study of kindergartners' school scripts. When children were interviewed four times in the first three months of school, Fivush (1984) reported that children's event narratives were highly similar. Children were able to give general information, but were unable to recall specific details. More surprising is the fact that even on the second day of school, less than one-half of the children were able to report specific details of their first day. This leads to the conclusion that it is difficult to access specific event memories from a general script representation. Because it was the children's first day of school, they did not have a way to classify the event as they were just forming a basic script and therefore were not able to "tag" the details as memorable. However, if given a cue, like the title of a book that was read to them, children were able to give more information about the story. This indicates that specific information was still available in memory, but it was difficult to access. If this is the case, children should be able to answer specific recall questions better than they can respond to free recall questions. However, specific questions that include misleading information may in turn increase the child's susceptibility to suggestion, especially if the information is script-consistent.

Additional support comes from Farrar and Goodman (1990) who looked at the developmental differences for children's scripts and episodic memories. They found that young children, as compared to older children and adults, seem more dependent on scripts when recalling autobiographical events, and suggested the schema confirmation and deployment hypothesis. This theory predicts when children will and will not form distinct episodic memories for

events. They argue that when an event is experienced, people either select an already encoded schema or formulate a new schema in order to understand the experience. Once a schema is selected or formed, information in the event that is consistent with the schema requires little or no attentional processes because it is now expected. Attention can now be given to the discrepant or incongruous-schema information in the event. This new inconsistent information is established as a separate memory linked to the schema.

This hypothesis was tested by having both 4 and 7 year olds visit a lab several times in two weeks. During these visits, children played in four events. Three of the four visits were identical (script visits) and 1 visit was different (episodic event). Children received both immediate and delayed memory interviews. Results indicated that children recalled the script visit better than the episodic visit and younger children were more script dependent when recalling the episodic visit. Seven year olds were more likely to form separate memories for the script and episodic visits. Overall, it was concluded that young children's script memory is better than their episodic memory and that scripts may be the basis of organizing their specific memories. Young children may take longer to form and confirm a schema, thus remaining in the schema confirmation phase longer than older children and adults who through a more extensive knowledge base or faster processing are able to confirm the schema and move into the schema deployment stage. With more experience with the event, children are able to achieve schema confirmation rapidly, and are then able to form distinct memories for script deviations.

In the context of an eyewitness event, this view suggests that younger children may pay more attention to the familiar scripted aspects of the event in order to match and confirm the actual event with their schema representation. It is only after they have experienced enough similar events that schema



representations would become general and they would begin to focus on aspects of the event that are atypical. Children who are eyewitnesses to an event should therefore be accurate and remember details in as much as they are able to match the event to a script. Children with already well formed script representations will be better able to confirm the schema and move their attention to noticing the atypical details of the event. Children for whom the event is novel should allocate their attention to trying to match the event to a script representation in order to put the event into a context they can understand. These children will display poor memory accuracy and will recall few details of the event.

### Implications for Eyewitness Memory

Work suggesting that children's memory depends upon their prior knowledge leads to several hypotheses. First, free recall may be good if children recall personally experienced events, are not given misleading information, and are asked about familiar events, except that they will tend to confuse memories of similar events. Free recall answers about familiar events will also tend to contain more generalizations than recall about less familiar experiences.

Second, prior knowledge/scripts may lead to intrusion errors, especially after a delay. Ceci, Caves, and Howe (1981) found that children's memory is influenced by prior knowledge such that previous knowledge can distort what is remembered. Graesser, Woll, Kowalsky, and Smith (1980) found that recognition and recall memory is initially better for atypical actions but that these atypical acts are forgotten faster (i.e., errors of omission). Thus, memory after a short delay is reproductive but as time passes, memory becomes reconstructive. Reconstructing events relies heavily on general script information in which case the details of the specific episode are not included and therefore not available to be remembered. Goodman (1990) found that information typical for the event

was easily reconstructed and retrieved by subjects, leading to the assumption that the items were expected and represented in a prototype form. Information atypical to the event was represented separately and in detail, but was difficult to recall in the context of the event representation. Errors of omission may reflect parts of the event that are deviant from the script knowledge and therefore are not reported. Thus, if a witnessed event is novel and does not match the child's script representations, the child may be less able to remember specific information and could be especially vulnerable to suggestion. The effects of prior knowledge should be especially great on younger children who are still forming scripts and are less flexible in their script usage.

The present research is designed to examine children's memory, identification accuracy, and suggestibility in relation to their prior knowledge about the event. Script theory predicts that young children will have difficulty distinguishing between what generally happens, and what happened this particular time. However, script theory research has been limited by a focus on memory for stories and there is need for a study to examine the role of prior knowledge in the context of a real-life event. Specifically, children who are knowledgeable about a witnessed event may be more prone to make errors reflecting inferences and expectations, with these errors becoming increasingly apparent after a delay. In order to evaluate this hypothesis, it was necessary to design an event that could incorporate familiar and unfamiliar components and that could be interpreted in relation to an established script. One well known script to young children is a birthday party. Nelson and Gruendel (1986) found that three year olds knew the core components of birthday parties. In addition, the effect of script representations on memory should be especially observable in kindergartners as they already have well developed script knowledge. However, this age group has been found to have difficulty in remembering script

deviations because they have not yet acquired flexibility in their strategic use of scripts. Further, five to six year olds are sufficiently verbal enabling them to respond to free recall questions, yet at the same time, these children show limited spontaneous verbal recall.

In order to confirm the nature of children's birthday party scripts, a preliminary study was conducted with children who were asked to identify the components of a child's birthday party. The data indicated that children at this age have already established a well developed representation for what happens at a birthday party. Script-consistent information, mentioned by all subjects, included central components such as the cake and presents. Peripheral script-consistent information includes decorations and games. All subjects referred to these items but varied in the types of exemplars mentioned. Further, some aspects such as candles were only mentioned by a few of the subjects. This indicates that not all children have incorporated these as part of their script knowledge. Finally, children were asked about script-inconsistent information, and items were rated according to their typicality at a birthday party. APPENDIX A contains a summary of the results of the preliminary study. Based on these findings, an event was designed to conform to children's birthday party scripts and to include unexpected deviations (e.g. an intruder takes a container). A parallel play event was also designed, using the same components, without activating the birthday party script.

### Predictions

Considering that children's memory for an event reflects their prior knowledge, we predicted that memory for a witnessed crime would be affected by the child's expectations and previous experience. We expected the presence of certain errors that will reflect the influence of scripts on memory for the crime

event. Errors of commission, that is the reporting of something that was not observed or did not happen, would be more likely to refer to objects or actions that would be expected to be present from the standpoint of the child's prior knowledge.

In sum, children's memory will be accurate for those aspects of a witnessed event that correspond to their prior knowledge. Accuracy for script consistent events should remain high even over long delays. Second, children will be likely to make errors regarding aspects of the event that their script knowledge would have expected, but did not actually occur in the real event. Children should be susceptible to misleading questions if the questions encourage the child to report something that the child expected or would be script consistent. Finally, after a delay which weakens the tagged deviations from the script, children will be more likely to confuse what they actually witnessed with what their prior knowledge would lead them to expect could have happened.

## CHAPTER 2

### METHOD

#### Participants

A total of 44, 5 year old subjects ( $M=66.52$  months,  $SD=4.58$ ) participated in either a mock birthday party event or a parallel play session. Of these 44 children, 40 were included in the analyses (one was dropped due to lack of experience with birthday parties, one was dropped due to seeing the intruder in the hallway before the event, one was not able to participate in a two week interview, and one was a pilot subject where stimulus materials were changed subsequent to that child's participation). The final sample of 27 female and 13 male participants had a mean age of 66.6 months (5 years 6 months,  $SD=4.43$ ). Of the 40 participants, 20 participated in the birthday party event while the additional 20 participated in the play event. For each of the events, 10 children received both immediate and delayed interviews and 10 children received only the delayed interview. The average delay between the event and the two week interview was 14.27 days ( $SD=1.73$ ).

#### Birthday Party and Play Participants

Children participating in the birthday party and play events were very similar to each other. Birthday party participants had a mean age of 67.25 months ( $SD=4.91$ ) while children in the play event had a mean age of 65.95 months ( $SD=3.79$ ). Children in the play condition had a mean delay between the event and delayed interview of 14.35 days ( $SD=1.11$ ). Participants in the birthday party condition had a mean delay time of 14.20 days ( $SD=2.18$ ). In addition, the distribution of male and female participants was similar across events. There

were 14 female and 6 male participants in the play session while 13 female and 7 male children participated in the birthday party.

### Design

Each child visited the University laboratory twice for two sessions held approximately two weeks apart. Half of the children were interviewed regarding their memory for the event immediately following the session. These children also returned two weeks later for a repeat interview. The other children received only the delayed interview, two weeks after experiencing the event.

### Materials

#### Birthday Party and Play Event

A large University room (4.42 x 2.9 meters) was arranged so that parents sat in the back of the room and watched their child participate in the event. The room contained a camera against the back wall that recorded the entire event. In front of the camera was a small table and three chairs. On the left wall was a bulletin board, and the rear of the room contained a counter with a screen room divider to the right.

#### Props

These included a Teddy Bear, 3 boxes (brown, orange, and green bows) filled with a ball, a jar of honey, and yellow mittens; blue plates, flower napkins, graham crackers, juice, cups, party hats, baseball hats, cut out paper balloon or number wall decorations, a birthday tablecloth, a pin-the-tail on the donkey game, a map game, and an instant camera used to photograph the child at the end of the event.

### Identification Task

Eight head and shoulder, frontal view photographs of young men, the target and distracters, were taken. One man played the role of the perpetrator for the intrusion incident in the birthday party and play session. The photos of the eight adult males were chosen for their similarity in general appearance to the suspect. All were photographed in white t-shirts and with a serious expression. Twenty-six adult subjects were shown the lineup foils and target and asked to choose the picture that best matched the written description of the perpetrator. In addition, twenty-one fourth grade children were also asked to choose the photo that best matched the actual suspect description. From these judgments, a lineup, consisting of the target and the five foils that were judged to best fit the suspect's description, was constructed.

### Recording Equipment

A portable Panasonic AG-2400 VCR and camera were used to videotape the entire event. The recorder with a wide lens was placed at the back of the room and recorded all the events in the room. An audio cassette recorder was used to record all of the interview sessions.

### Procedure

#### Birthday Party Event

Children were invited to participate in a mock birthday party being held for a stuffed teddy bear. Upon arrival, the parents were seated, informed of the procedure, and asked to fill out the consent form. Once the consent form was complete the parents were handed two questionnaires to fill out containing questions about the child's timidity and ease in new situations, and questions

about the child's experience with birthday parties, including a description of the child's last party, and estimates of how many parties the child had attended, read about and watched on television. See APPENDICES B, C, and D for the consent forms and questionnaires used.

At this time the child was asked by the host of the party to come over to the counter to help get the presents ready for Corey the Bear. The child helped the host put a ball, yellow mittens, and a jar of honey inside three boxes with bows. The boxes were left on the counter to be opened later by Corey. The child was then led to the decorated table and seated in a chair. The host brought Corey out from behind the screen room divider where he was hiding. The child was introduced to the bear and the child was told to find a party hat like the one Corey was wearing hidden somewhere in the room. Once the child located one of the two hats (hidden in the room either on the bottom shelf of the counter or on top of the screen divider) the child and the bear were invited to play pin the tail on the donkey. Corey went first and was twirled around before being guided to the donkey. The child was then given a turn. At the end of the game, the host announced that it was time to eat. The host picked up the presents from the counter and put them on the table. The child and the bear were led back to the table where paper plates, paper cups of juice and graham crackers were set out. Everyone sang "Happy Birthday" to Corey. Up to this point, the actions and details were consistent with children's birthday party scripts.

After the song, a script-inconsistent event took place. The host realized that she forgot to pass out napkins so she went behind the screen to get them. An adult male intruder entered the room unexpectedly and went over to the counter. The host came out from behind the screen toward the intruder and the two spoke briefly in low voices in an intense, serious manner. The intruder then approached the table and gave the child a full view of his face for 15



seconds. He shook each box and finally picked up one of the presents and quickly left the room. The host responded by saying "Oh my goodness, he just took one of Corey's presents. I'm so sorry. He should not have done that. I'll try to find him later and get the present back. But for now, let's open the other presents and continue with the party." The interruption lasted about 45 seconds and was designed to be unexpected and ambiguous to children, but not frightening. Once the intruder left, the event resumed the script consistent form: the host announced that it was time for the gifts. The host suggested a guessing game wherein Corey tried to guess what was inside each remaining box before he opened it. The event came to a close by having each child pose for a picture with the bear.

The event lasted about 15 minutes and was entirely videotaped to provide a record of what actually happened, as a check on the child's memory and to check the similarity of events over different sessions.

### Play Session

The remaining participants (n=20) were invited to participate in a play session with a stuffed teddy bear. Upon arrival, the parents were seated, informed of the procedure, and asked to fill out the consent form. Once the consent form was complete the parents were handed a questionnaire to fill out containing questions about the child's timidity and ease in new situations. Copies of the questionnaire and consent forms can be found in APPENDICES B, C, D. At this time each child was directed to the counter where he or she put a ball, a jar of honey, and yellow mittens in boxes so that later they could play a guessing game with Corey the bear. The child was then seated at an undecorated table and the host retrieved Corey from behind the screen where he was hiding. Introductions were made and it was stated that this was a playtime with Corey.

The child was told to look around the room to find a baseball cap just like the one Corey wore. The child and the bear then were invited to play the map game in which animals were pinned to their home on a map. Corey went first and was twirled around before being guided to the map. The child was then given a turn. After the game, the host picked up the boxes from the counter and put them on the table. The child and the bear were led back to the table where paper plates, paper cups of juice and graham crackers were set out. Everyone sang the "Barney Theme Song".

After the song, the exact same intruder incident occurred where the intruder approached the table and gave the child a full view of his face for 15 seconds. He shook all the boxes before he picked up one of them and then quickly left the room. Once the intruder was gone, the event resumed and the host announced that it was time for the guessing game. The child and host helped Corey guess what was inside the remaining boxes. The host opened the boxes and put the items in front of the bear. The event came to a close by having each child pose for a picture with the bear.

Again, the event lasted about 15 minutes and was entirely videotaped to provide a record of what actually happened, as a check on the child's memory and to check the similarity of events over different sessions. APPENDIX E outlines the birthday party and parallel playtime events.

### Memory Interviews

Children were assigned to one of two conditions. Half of the children in the birthday party event (n=10) and play event (n=10) participated in an immediate memory and identification interview, as well as a follow up interview two weeks later (Marin et al., 1979). The remaining children in the birthday (n=10) and play group (n=10) were sent home without an immediate

interview, but returned for a delayed memory and identification interview two weeks later, in order to evaluate the impact of immediate questioning on long term memory retention for the event. Thus, 20 children experienced both immediate and delayed memory interviews whereas another 20 children only experienced the delayed memory interview. All interviews were conducted in a separate laboratory room in an adjacent building and were audio taped to insure accuracy. Different experimenters conducted the first and second interviews and neither was present for the event.

### Immediate Memory Interview

The procedure for the immediate interview is detailed completely below. As previously mentioned, only half the children in each event group participated in the immediate interview.

#### Free Recall

The interview began with a free recall question ("What happened at Corey the bear's birthday party/playtime? Anything else?").

#### Specific Probe Questions

Factual and suggestive specific probe questions followed the free recall. The non-leading and suggestive questions are further broken down into questions for both the events and their intrusion episodes. Each type contained both recognition and recall questions.

Factual Questions. Children were asked non-suggestive questions about the event they participated in and its intruder visit. A non-leading question was "What song did you sing?" Children were also asked questions about the

intruder visit. These included questions about his appearance and his actions. For example, an important aspect of the intruder should involve his actions, which would be important information for a witness to provide (What was the intruder doing?). Other important information regarding the intruder visit would be to describe what he was wearing.

Suggestive Questions. Suggestive questions also tested children's memory for the event and intruder incident. Information implied in these questions suggested something that did not actually happen at the event. Children were asked "How many candles were on the cake?" Although there was not a cake actually present at the birthday party, the preliminary data indicated that a cake is a very central component of children's birthday party scripts, and the way in which the question is worded suggests that a cake was present at the party. Suggestive questions were also asked regarding the intruder's visit. A suggestive question is "Were his sunglasses in his hand or in his pocket?". He was not wearing or carrying sunglasses.

All the children received the free recall question first. Half of the children in the two-interview group and the one-interview group received order one of the interview questions. Children given order one were asked eight questions about the event followed by eight questions about the intruder. The other half of the participants received order two which asked eight questions about the intruder incident followed by eight questions about the event. In addition to these questions four filler questions were asked about juice, the intruder's hair color and age, and what happened at the end of the event. These were used to vary the conversational style of the interview. APPENDIX F lists the interview questions.

### Photo Identification Task

In addition to the memory interview, children were asked to identify the intruder from a six person photograph lineup. The intruder's picture was always present in the lineup. See Appendix G for the intruder identification lineup.

### Delayed Memory Interview

After two weeks, all children in both event groups returned to the laboratory for a delayed interview. For those children who were interviewed previously, the delayed interview included the same questions, order of questions, and identification task as the immediate interview. Comparison of the responses across the two sessions allowed us to detect changes due to the influence of script knowledge and suggestive questions over time.

## CHAPTER 3 RESULTS

### Memory Interview: Dependent Measures

Correct responses to each memory question were summed to create a composite memory score for each child ranging from 0-16. Eight questions were about the event (birthday/play) that the child participated in; these included four suggestive questions and four factual questions. These suggestive and factual questions each contained two recall and two recognition questions. The remaining eight questions concerned the intruder incident. Again, four questions about the intruder were factual and four were suggestive. Of these factual and suggestive questions, two were recall and two were recognition type questions. Thus, children received scores for their answers to the event and intruder questions, factual and suggestive questions, and recognition and recall questions. Event and intruder scores were summed to create the total composite memory score. Children in the two-interview condition received scores for each interview (immediate and delay).

### Preliminary Comparisons

Composite memory scores were used in preliminary analyses to test for effects of gender, order, and procedural variations. Since only 20 children participated in an immediate interview, two anovas were conducted. The first examined participants' gender (male/female) and question type (factual/suggestive) and found no effect of gender on subjects' responses to the factual and suggestive questions at the immediate interview. A second two-way analysis of variance examined order of episode questions (event first/intruder first) and question type (factual/suggestive), and revealed no effect of the order in

which the interview questions were given on children's scores to the factual and suggestive questions.

For the delayed interview, a three-way analysis of variance was carried out examining gender (male/female) and order (1/2) on factual and suggestive scores. No effects of gender, order, or interactions were found. However, there was a 3-way interaction ( $F(1,36)=6.863, p<.05$ ). Boys given the event questions first responded differently to suggestive questions ( $M=5.33, SD=1.7$ ) than girls who received event questions first ( $M=3.645, SD=1.3$ ).

In addition, some children participated in the event in pairs ( $n=12$ ) while the majority participated individually ( $n=28$ ). A t-test revealed no significant differences ( $t(38)=-1.26, p>.05$ ) between the total memory scores at the delay interview of children who participated alone ( $M=8.32, SD=2.78$ ) versus those that participated with another child ( $M=9.5, SD=2.29$ ). Further, there were two undergraduate research assistants who acted as hosts of the events. No significant differences were found between the total memory scores of those children that participated with the first host, and the total memory scores of the children who participated with the second host at either the immediate or delayed interview.

In general, these preliminary analyses revealed no significant or consistent effects of gender, question order, host, or single-pair participation. In subsequent analyses, data are therefore collapsed across these variables.

### Memory Interview

#### Free Recall

Free recall was measured by counting the number of different correct components mentioned in response to the question "What happened at Corey

the Bear's birthday/play time? Anything else?". Table 1 shows the mean number of components that were mentioned at free recall.

Table 1  
Mean Number of Components Free Recalled at Each Interview by Children who Participated in the Birthday Party and Play Session Events.

Condition	<u>n</u>	Birthday Party	Play Session
Two Interview	20		
Immediate		3.80 (1.47)	3.20 (.87)
Delay		3.20 (1.60)	2.30 (1.49)
One Interview	20		
Delay		2.40 (2.11)	2.20 (1.66)

On the immediate interview, there were no significant differences in the number of items recalled between children in the birthday party (M=3.8 items, SD=1.47) or play session (M=3.2 items, SD=.87) groups, ( $t(18)=1.05$ ,  $p>.05$ ). On the delayed interview, there were also no significant differences in the number of components recalled between children in the birthday party (M=2.8 items, SD=1.91) and play (M=2.25 items, SD=1.58) groups, ( $t(18)=.97$ ,  $p>.05$ ). In addition, a t-test revealed no significant differences between the number of items the 2-interview children recalled on their immediate interview and the amount they recalled at the delayed interview ( $t(18)=1.61$ ,  $p>.05$ ). These children recalled an



average of 3.5 items (SD=1.24) on the immediate interview and 2.75 items (SD=1.61) when they returned 2 weeks later. As seen in Table 2, which shows the frequency that components were mentioned at free recall, recall of the intruder's visit was low overall for both the birthday party and play groups .

Table 2  
Frequency of Items Free Recalled at Each Interview by Children who Participated in the Birthday Party and Play Session Events.

Items recalled	Immediate		Second-Delay		Delay Only	
	b'day	play	b'day	play	b'day	play
ate	8	9	7	6	6	4
played game	9	8	9	7	4	8
box/ presents	10	6	7	2	6	1
picture taken	2	2	2	3	1	2
intruder	2	4	1	2	3	2
other	5	3	2	3	3	5
I don't know	0	0	1	2	3	2

## Specific Probe Questions

### Immediate Interview

A total of twenty children participated in an interview immediately following the event. A three-way anova examining event (birthday/play), episode questions (event/intruder), and question type (factual/suggestive) with episode and question type as within subject factors was conducted. The data may be seen in the top half of Table 3.

Table 3  
Mean Number of Correct Responses to Factual and Suggestive Questions by Children in the Birthday Party and Play Session Events at Immediate and Delayed Interviews.

Condition	n	Questions			
		Event		Intruder	
		factual	suggestive	factual	suggestive
<b>Immediate</b>					
Birthday	10	3.30 (.64)	3.5 (.67)	2.30 (1.10)	2.40 (1.20)
Play	10	3.10 (.70)	3.30 (1.19)	2.20 (.87)	2.30 (1.19)
<b>Delay</b>					
Birthday	20	2.70 (1.00)	2.85 (.91)	2.05 (.80)	1.95 (1.02)
Play	20	2.35 (.91)	1.80 (1.33)	2.10 (.54)	1.65 (1.06)

Note. Standard deviations in parentheses.

Children in the birthday party and play event did not differ in the number of correct responses. However, children scored higher on event than intruder questions ( $F(1,18)=21.884, p<.05$ ); children correctly answered an average of 6.60 event questions ( $SD=.97$ ) and 4.6 intruder questions ( $SD=1.53$ ). They responded equivalently on factual and suggestive questions. Table 4 shows the mean number of correct responses to the recall and recognition questions about the event and intruder episodes.

Table 4  
Mean Number of Correct Responses to Recall and Recognition Questions by Children in the Birthday Party and Play Session Events at Immediate and Delayed Interviews.

Interview	n	Questions			
		Event		Intruder	
		recall	recognition	recall	recognition
Immediate					
Birthday	10	3.40 (.49)	3.40 (.49)	2.50 (1.20)	2.20 (.87)
Play	10	3.10 (1.04)	3.30 (.64)	2.50 (.67)	2.00 (.63)
Delay					
Birthday	20	2.90 (.99)	2.65 (.73)	2.30 (.95)	1.70 (.78)
Play	20	1.85 (1.31)	2.30 (.78)	1.95 (.92)	1.80 (.51)

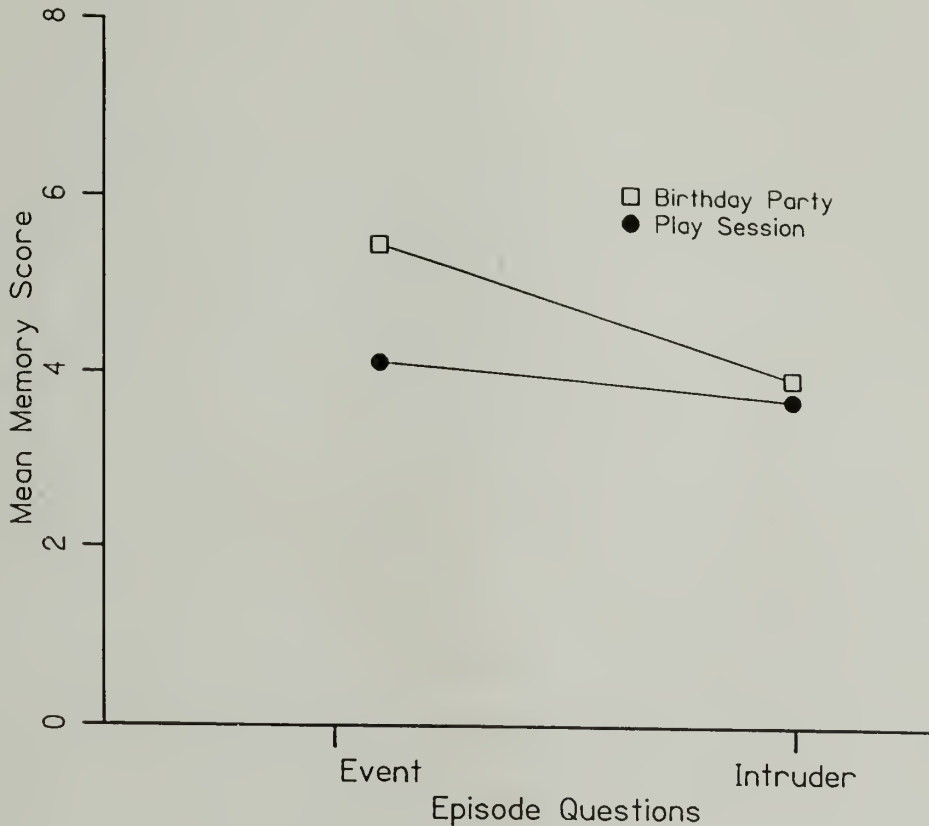
Note. Standard Deviations in parentheses.

A similar analysis revealed no effect of recall versus recognition questions on the immediate interview.

### Delayed Interview

Scores for the 40 children who were interviewed two weeks after participating in the event were analyzed in a four-way analysis of variance examining event (birthday/play), the number of interviews a child had (1/2), question type (factual/suggestive), and episode (event/intruder) questions; question type and episode were within subject factors. Mean correct responses at the delayed memory interview may be seen at the bottom of Tables 3 (pg. 30) and 4 (pg. 31). In contrast to the immediate interview, after two weeks, results indicated a main effect of event ( $F(1,36)=4.656, p<.05$ ). Children who experienced the birthday party had a total mean score of 9.55 ( $SD=2.46$ ) whereas children in the play event scored an average of 7.9 ( $SD=2.53$ ). There was also an effect of event/intruder questions ( $F(1,36)=12.524, p<.05$ ). Children were better able to answer the event questions ( $M=4.85, SD=1.80$ ) than the intruder questions ( $M=3.88, SD=1.36$ ).

In addition, there was an effect of the number of interviews a child experienced ( $F(1,36)=6.503, p<.05$ ). Children who were only interviewed after two weeks performed significantly less well ( $M=7.75, SD=2.45$ ) than children who had both an immediate and delayed interview ( $M=9.70, SD=2.43$ ). There was no effect of factual or suggestive questions. As may be seen in Figure 1 (pg. 33) there was an interaction between the event experience (birthday/play) and question type (event/intruder),  $F(1,36)=4.356, p<.05$ .



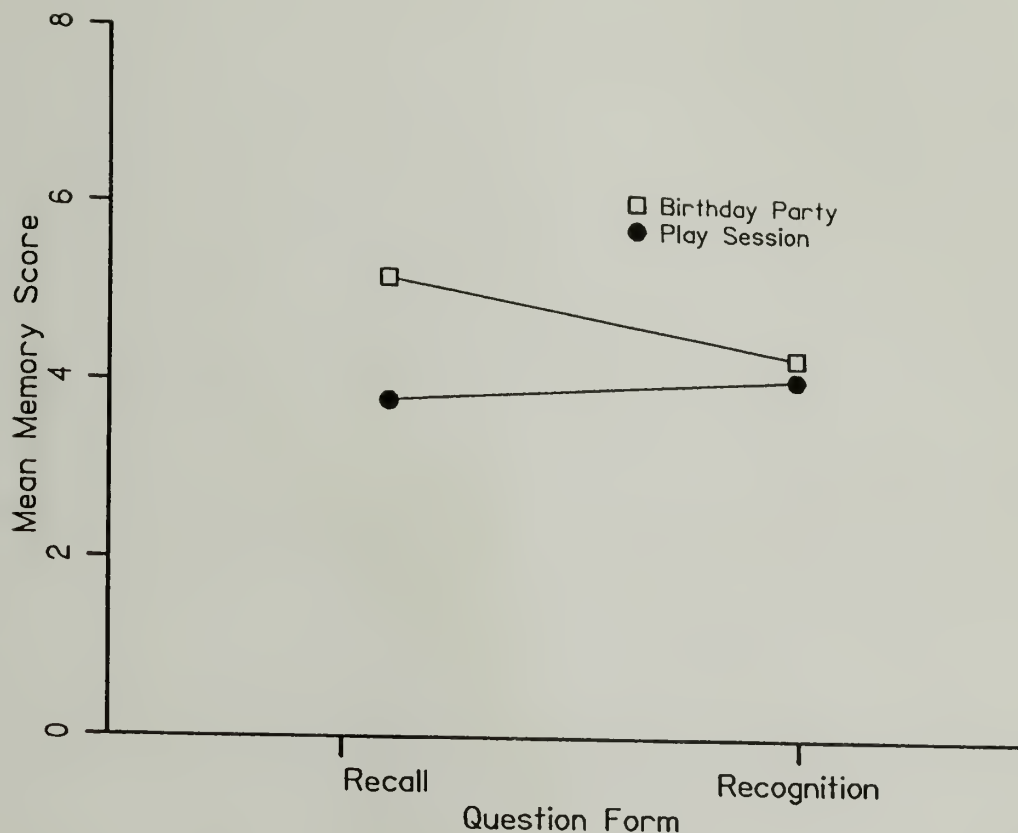
**Figure 1.** Mean memory score at the delayed interview as a function of event (birthday party/play session) and episode (event/intruder).

Event questions were better answered for children who participated in the birthday party event ( $M=5.55$ ,  $SD=1.53$ ) than children who participated in the play event ( $M=4.15$ ,  $SD=1.77$ ), ( $F(1,65)=8.826$ ,  $p<.05$ ). Participants in the birthday party event performed better on the event questions than on the intruder questions ( $M=4.00$ ,  $SD=1.52$ ), ( $F(1,36)=15.826$ ,  $p<.05$ ). On the other hand, performance was similar for both groups on the intruder questions and children in the play group performed similarly in the event and intruder ( $M=3.75$ ,  $SD=1.18$ ) questions.

### Recall/Recognition Comparisons

Both the eight factual and eight suggestive questions included two question forms: recognition ( $n=4$ ) and recall ( $n=4$ ) questions. Because children performed similarly on the factual and suggestive questions, additional analyses were performed to investigate whether question form affected performance. As mentioned earlier, there was no effect of recognition/recall at the immediate interview. To learn if question form affected performance after two weeks, a four-way anova was conducted to examine event (birthday/play), the number of interviews a child experienced (1/2), effects of question type (factual/suggestive), and question form (recognition/recall). Consistent with previous analyses, children who experienced the birthday party outperformed children who participated in the play session, ( $F(1,36)=4.656, p<.05$ ). Similarly, children who had an immediate interview performed better two weeks later than children who only had a delayed interview, ( $F(1,36)=6.503, p<.05$ ).

Although there was no main effect of question type (factual/suggestive) or question form (recognition/recall), there was an interaction between event (birthday/play) and recognition/recall ( $F(1,36)=6.323, p<.05$ ). The interaction is depicted in Figure 2 (page 35).



**Figure 2.** Mean memory score at the delayed interview as a function of event (birthday party/play session) and question form (recall/recognition).

Participants in the birthday party event scored significantly higher on the recall questions ( $M=5.20$ ,  $SD=1.57$ ) than participants in the play session ( $M=3.8$ ,  $SD=1.83$ ),  $F(1,59)=9.875$ ,  $p<.05$ . In addition, children who experienced the birthday party event answered the recall questions ( $M=5.20$ ,  $SD=1.57$ ) significantly better than they answered the recognition questions ( $M=4.35$ ,  $SD=1.15$ ),  $F(1,36)=6.908$ ,  $p<.05$ . Both groups performed similarly on the recognition

questions and children who participated in the play session did not differ in answering recall and recognition questions ( $M=4.10$ ,  $SD=1.04$ ).

In Table 5, the mean number of correct responses to factual and suggestive questions are shown separately for recall and recognition.

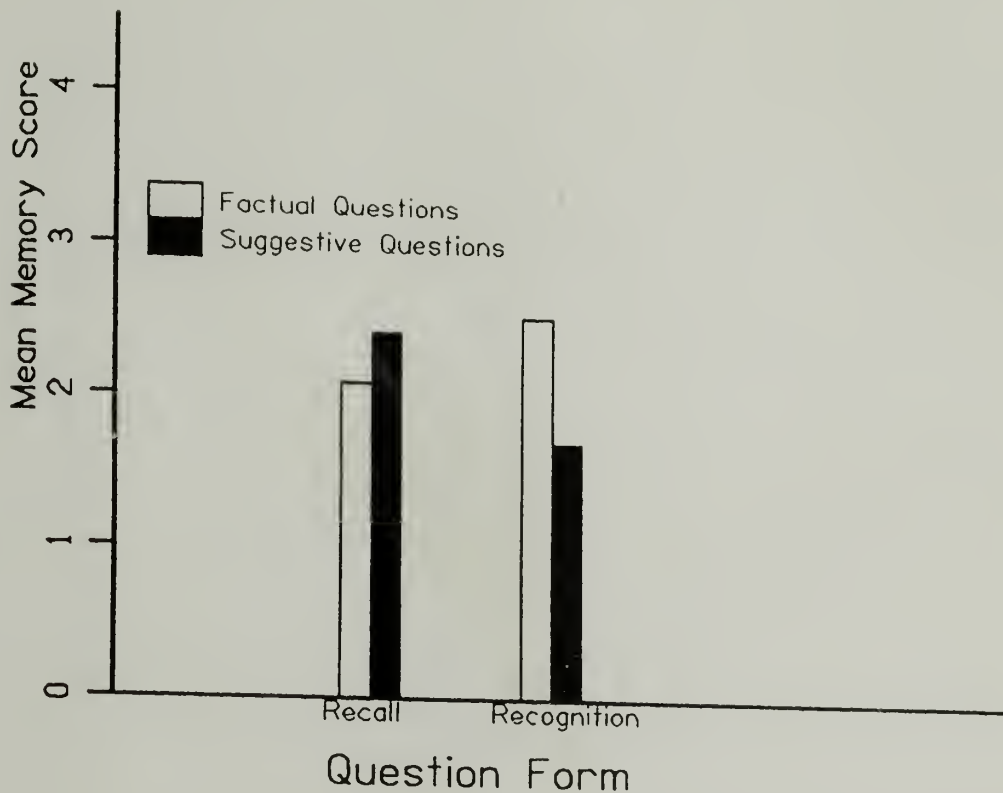
Table 5  
Mean Number of Correct Responses to Recall and Recognition Questions by Children in the Birthday Party and Play Session Events at Immediate and Delayed Interviews.

Interview	n	Questions			
		Factual		Suggestive	
		recall	recognition	recall	recognition
Immediate					
Birthday	10	2.70 (.64)	2.90 (.54)	3.20 (.87)	2.70 (.78)
Play	10	2.70 (.78)	2.60 (.80)	2.90 (1.14)	2.70 (.90)
Delay					
Birthday	20	2.30 (.84)	2.45 (.67)	2.90 (1.04)	1.90 (.89)
Play	20	1.85 (.96)	2.60 (.58)	1.95 (1.24)	1.50 (.97)

Note. Standard Deviations in parentheses.

There was an interaction between factual/suggestive questions and recall/recognition questions ( $F(1,36)=25.587, p<.05$ ). Figure 3 (page 37) shows mean memory scores separately for each question form (recall/recognition) and type (factual/suggestive).



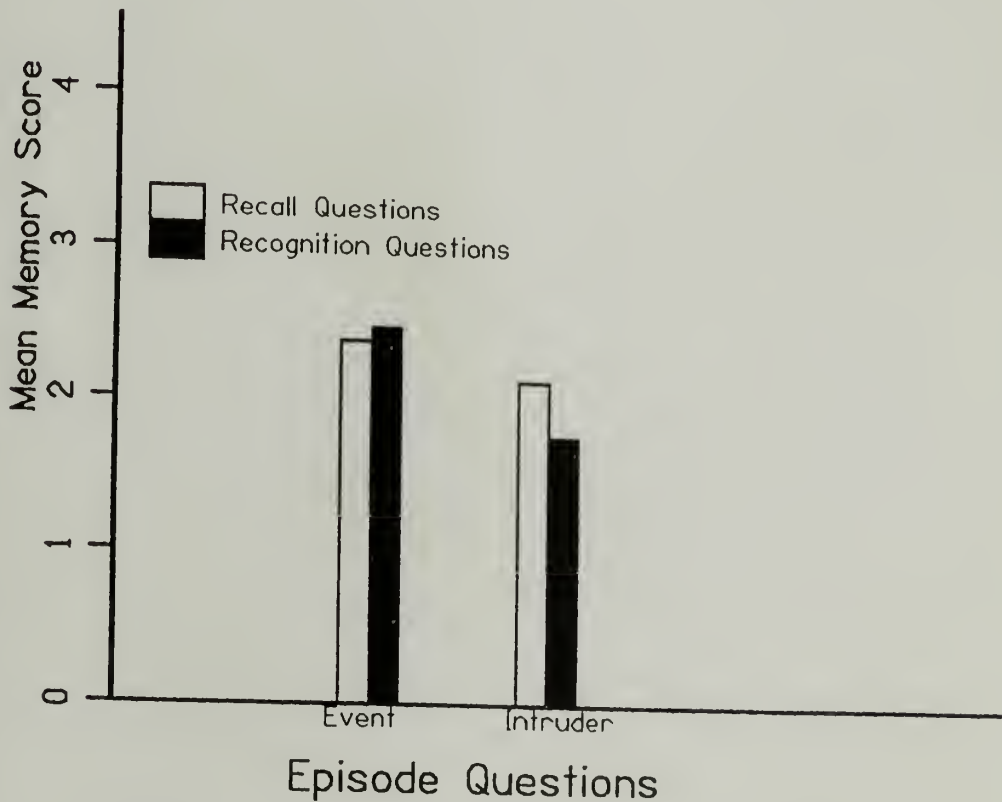


**Figure 3.** Mean memory score at the delayed interview as a function of question form (recall/recognition) and question type (factual/suggestive).

Children performed best on factual recognition questions ( $M=2.53$ ,  $SD=.63$ ) and worst on suggestive recognition questions ( $M=1.70$ ,  $SD=.95$ ),  $F(1,36)=19.031$ ,  $p<.05$ . The pattern was not the same for recall questions. Although not statistically significant, children tended to respond more correctly on suggestive recall questions than on factual recall questions. Factual recognition questions were also answered better than factual recall ( $M=2.08$ ,  $SD=.93$ ),  $F(1,36)=7.881$ ,

$p < .05$ . In addition, suggestive recall questions ( $M=2.42$ ,  $SD=1.24$ ) were answered better than suggestive recognition questions.

Figure 4 (page 38) shows the interaction of question form (recall/recognition) and episode (event/intruder).



**Figure 4.** Mean memory score at the delayed interview as a function of episode (event/intruder) and question form (recall/recognition).

Children answered recognition questions about the event episode ( $M=2.47$ ,  $SD=.77$ ) better than recognition questions about the intruder episode ( $M=1.75$ ,  $SD=.66$ ),  $F(1.36)=5.165$ ,  $p < .05$ . Performance was better for recall questions about

the intruder ( $M=2.12$ ,  $SD=.95$ ) than for recognition questions about the intruder. Performance on the recall questions for both the event and intruder episode was similar. Recognition performance was better for the event than intruder.

### Two Interview Comparisons

In order to learn if being interviewed immediately after the event affected long term memory, memory scores for the 20 children who participated in two interviews were analyzed separately. Table 6 (page 39) shows the mean number of correct responses for the immediate and delayed interview by children in the two interview condition.

Table 6  
Mean Number of Correct Responses to Event and Intruder Questions by Children in the Birthday Party and Play Session Events for First (Immediate) and Second (Delayed) Interviews.

Condition	n	Event			
		Birthday		Play	
		Event	Intruder	Event	Intruder
First -	20	6.80	4.70	6.40	4.50
Immediate		(.60)	(1.85)	(1.20)	(1.12)
Second-	20	6.20	4.40	4.90	3.90
Delay		(1.25)	(1.69)	(1.70)	(.94)

Note. Standard deviations in parentheses.

A three-way anova looking at event (birthday/play), episode (event/intruder), and interview (immediate/delayed) was conducted. Children performed better

on the immediate interview ( $M=11.2$ ,  $SD=1.81$ ) than on the delayed interview ( $M=9.7$ ,  $SD=2.43$ ),  $F(1,18)=6.338$ ,  $p<.05$ . Consistent with earlier analyses, questions about the event ( $M=12.15$ ,  $SD=2.29$ ) received more correct answers across both interviews than the questions about the intruder ( $M=8.75$ ,  $SD=2.41$ ),  $F(1,18)=20.420$ ,  $p<.05$ .

A second analysis examined these children's performance on factual/suggestive questions. Again, there was an effect of time of interview ( $F(1,18)=6.338$ ,  $p<.05$ ) where children performed better on the immediate interview than on the delayed interview. There was no effect of factual/suggestive questions.

### Errors

The errors that children made on the memory questions were broken down into two types: commission errors and 'I don't know' responses. Children received an error score for each type of error at each interview. Separate analyses were conducted on immediate and delayed interviews. For the immediate interview, a three-way analysis of variance examining the event (birthday/play), episode (event/intruder), and type of error (I don't know/commission) revealed no significant effects of event or type of error. However, consistent with earlier analyses, children made fewer errors on the event questions ( $M=1.40$ ,  $SD=.97$ ) than on the intruder questions ( $M=3.4$ ,  $SD=1.53$ ),  $F(1,18)=21.884$ ,  $p<.05$ . A similar analysis looking at event (birthday/play), question type (factual/suggestive), and type of error (I don't know/commission) found no main effects of event, question, or errors. However, there was a significant interaction between question type and error type ( $F(1,18)=5.657$ ,  $p<.05$ ). For factual questions, errors of commission ( $M=1.8$ ,  $SD=1.33$ ) were made more often than I don't know answers ( $M=.75$ ,  $SD=.83$ ); no differences were found for suggestive questions.

Similar analyses were also conducted to examine errors on the delayed interviews. Children in the play condition made more errors ( $M=8.05$ ,  $SD=2.58$ ) than children in the birthday condition ( $M=6.40$ ,  $SD=2.40$ ),  $F(1,38)=4.176$ ,  $p<.05$ . Children made fewer errors on the event questions ( $M=3.12$ ,  $SD=1.78$ ) than on the intruder questions ( $M=4.10$ ,  $SD=1.37$ ),  $F(1,38)=12.748$ ,  $p<.05$ . In addition, there was a significant interaction of event and episode ( $F(1,38)=5.238$ ,  $p<.05$ ). For questions about the event, children in the play group made more errors ( $M=3.85$ ,  $SD=1.77$ ) than children in the birthday party group ( $M=2.4$ ,  $SD=1.46$ ), whereas the error rate was similar for both groups for intruder questions. There was no main effect of type of error ( $F(1,38)=.638$ ,  $p>.05$ ).

Table 7 (page 42) shows the mean numbers of commission errors and "I don't know" responses.

Table 7  
 Mean Number of Commission Errors and "I Don't Know" Responses as a  
 Function of Interview, Episode Questions, and Question Type.

Interview	n	Event				Intruder			
		Factual		Suggestive		Factual		Suggestive	
		IDK	Comm	IDK	Comm	IDK	Comm	IDK	Comm
Two Interview	20								
Immediate									
B'day		.20	.50	.30	.20	.60	1.10	1.00	.60
Play		.20	.70	.30	.40	.50	1.30	.60	1.10
Delayed	20								
B'day		.40	.50	.50	.30	.40	1.50	1.10	.60
Play		.70	1.10	.90	1.30	.80	.70	.60	1.00
One Interview	20								
Delayed									
B'day		.80	.80	.70	.80	1.40	.60	1.20	1.20
Play		.80	1.00	1.10	1.70	.90	1.10	.80	1.50

The analysis of variance examining event (birthday/play), question type (factual/suggestive) and type of error (I don't know/commission), and found only an effect of event ( $F(1,38)=4.176, p=.05$ ). Again, children in the play event made more errors ( $M=8.05, SD=2.58$ ) than children in the birthday party event ( $M=6.4, SD=2.40$ ).

#### Lineup Identification

Children in both the one- and two-interview groups were asked to make a lineup identification at the end of each interview. Table 8 lists the number of correct hits (positive recognition of the intruder), the number of misses

(identification of an innocent person), and the number of children who refused to choose anyone from the lineup.

Table 8  
 Frequency of Children at each Interview who Identified the Target, Identified an Innocent Suspect, or Refused to make an Identification.

Group	<u>n</u>	Hits	Errors	Didn't Choose
Two Interview	20			
Immediate		11	2	7
Delay		13	1	6
One Interview	20			
Delay		6	6	8

Children tested only after the delay were less likely than the two-interview children to accurately identify the target. A chi square test of association where children who correctly picked the intruder received a score of 2, children who refused to choose anyone received a score of 1, and children who missed the target and picked someone else received a score of 0 revealed that there was a significant relationship between the number of interviews children received and their lineup identification at the delayed interview,  $\chi^2=6.44$ ,  $df=2$ ,  $p>.05$ .

Children who had received two interviews were more likely to identify the intruder at the second interview. Children who were asked to identify the intruder on 2 occasions, tended to choose the same person 80% of the time.

Children repeated their identification choice at the delayed interview. There was no significant correlation between a total memory score for each child at the delayed interview and his or her lineup choice ( $r(38)=.11$ ,  $p<.05$ ).

### Personality Ratings

Parents of both groups rated how usual or unusual it was for their child to be fearful or timid in eight different situations on a 7-point usual/unusual Likert scale (See Appendix D). The parent ratings for each situation were averaged over the eight questions to yield a composite personality score for each child. Birthday children were rated an average of 4.61 (SD=1.12) on the usual/unusual scale. Play children were rated a mean of 4.55 (SD=1.37). This indicates that overall parents found their child to be "sometimes, sometimes not" fearful timid or shy in strange situations. A t-test revealed no significant differences in parental ratings of personality for the birthday party and play groups ( $t(38)=.15$ ,  $p>.05$ ).

Free recall at the immediate interview did not significantly correlate with the personality score ( $r(18)=.09$ ,  $p>.05$ ). On the delayed interview, there was a significant correlation between the number of items children mentioned in free recall and the parental rating of personality ( $r(38)=.40$ ,  $p<.05$ ) indicating that the less timid a child was, the more he or she mentioned in free recall. There were no significant correlations between children's personality rating and their memory scores for either factual or suggestive questions on the delayed interview.

### Birthday Party Experience

Parents of the children who participated in the birthday party event were asked to fill out a questionnaire on their child's experience with birthday parties (See Appendix C) in order to determine whether each child had a birthday party



script and to find out what type of experiences the children had with birthday parties. Parents estimated that their child had been to several birthday parties ( $M=6.15$  parties,  $SD=3.13$ ). Children had rarely attended a party within the last week ( $M=.15$ ,  $SD=.48$ ), might have attended one within the last month ( $M=1.05$  parties,  $SD=1.12$ ), and often had attended birthday parties within the last year ( $M=4.75$  parties,  $SD=1.33$ ). On average, the last party a child had attended was approximately one month earlier ( $M=1.35$  months ago,  $SD=1.35$ ). Seventy-five percent of the birthday party participants owned an average of 1.67 books ( $SD=.60$ ) about birthday parties, and 40% watched a video about birthday parties an average of 4.62 times a year ( $SD=3.43$ ). Seventy-five percent of the birthday party participants attended a school/ daycare that celebrated birthdays and parents estimated that these children attended an average of 8.73 school parties ( $SD=3.51$ ).

In addition, parents of the birthday party participants were asked to look through a list of possibilities and check off items that had appeared at their own child's last birthday party. Table 9 (pg. 46) summarizes the frequency score for each birthday item.

Table 9  
Frequency of Items Occurring at a Birthday Party as Rated by Parents.

Item	Frequency*
cake (chocolate, white, or marble)	20
birthday candles	20
singing Happy Birthday	19
balloons	18
opening presents	18
blowing out candles	17
frosting (chocolate, vanilla, other)	17
goodie bags	16
receiving birthday cards	16
a friends-only party	13
streamers	10
a family/relative party	10
helping buy gift for another	9
Pin the tail on the donkey	8
Happy Birthday banners	8
wrapping presents	7
sending birthday cards	6
pizza	6
chips/snacks	6
help bake a cake	6
other decorations	5
theme party	4
scavenger hunt	3
face painting	2
magician	2
cupcakes	2
other dessert	1
duck duck goose game	1
tic tac toe toss game	1
pool party	1
pony rides	1
clowns	0
other performer	0

As may be seen, the top five most frequently checked items were cake (20), birthday candles (20), singing happy birthday (19), balloons (18), and opening presents (18). In addition, several other birthday party components were common parts of the event for 80% or more of the children.

## CHAPTER 4

### DISCUSSION

This study was designed to examine the effect of script structure on children's eyewitness memory. More specifically, the study focused on children's memory, identification accuracy, and suggestibility in relation to their prior knowledge about the event and the factors that affect children's long-term retention of the witnessed information.

#### Scriptal Differences

Because script representations may influence how children recall an event, two parallel events were designed specifically to fit or not fit a birthday party script. The birthday party event was designed based on a preliminary pilot study with 5-year old children asking them to identify typical and atypical elements in a birthday party. To further confirm that the birthday party event corresponded to children's birthday party scripts, parents were asked to complete a questionnaire regarding their child's experience with birthday parties. Although parental reports were subjective and without independent verification, parents indicated that their children had extensive experience with birthday parties, attending six birthday parties a year and at least eight school birthday parties a year. In addition, the birthday party event included the items that parents had checked most frequently as having occurred at their child's last birthday party. Thus, both the pilot study and the parent data supported the manipulation. The birthday party event, as operationalized here, is clearly consistent with children's birthday party scripts.

The play event, although parallel to the birthday party event in actions and sequence, was designed not to elicit children's birthday script

representations. Children were explicitly told that they were going to participate in a "playtime with Corey" and care was taken not to mention 'party', 'presents', or other birthday party items. While participating in the event, children did not mention any similarity to a party, and only four children ever made any reference to a birthday party at their interview(s). Two referred to the boxes as presents, a third child called the get-together "a little party", and another child said "and the game, we stick animals on the right place, it's sort of like pin the tail on the donkey." These instances were only discussed in their free recall and were not mentioned in any other part of the interview. No children in the delay only condition ever made reference to a party and the few children in the two-interview condition who did refer to a party did not do so consistently.

#### Scriptal Effects on Children's Memory

Having experienced either a script or non-script event, children then participated in the interview portion of the study. Results from the interviews indicated that children's script representations supported their memory for an experienced event, at least after a delay. Although there was no difference between the memory of children in the birthday party and play conditions at the immediate interview, significant differences in memory were observed after two weeks. As predicted, children who participated in the birthday party accurately remembered more information than children who participated in the play event. Children in both the play and birthday party groups were able to remember the event equally well at the immediate interview; it seems reasonable to argue that it was the availability of a script structure for the birthday party event that enabled them to remember significantly more about the event at the delayed interview. This finding is consistent with Hudson's (1990) work. In her study, there were no effects of experience on children's immediate

recall of a creative movement workshop, but after a four week delay, children who had developed a script for the event (four workshops) recalled more than children who had only participated in one workshop.

#### Differences in Recall and Recognition Memory

There was additional evidence that children's script representations supported long term recall. After two weeks, birthday party participants answered recall questions better than recognition questions. There was no difference between recall and recognition questions for children in the play group. Recall questions have generally been found to be a more demanding test of memory. Since birthday party and play event participants did not differ in their recognition memory performance, script representations do not hurt recognition memory. On the other hand, recall was enhanced for the birthday party group. Thus, script representations give additional support and structure to the more difficult recall memory.

#### Differences in Event and Intruder Memory

Birthday party participants also made fewer errors on questions about the event itself, that is, the part of the experience that fit with their prior knowledge. In contrast, children in the play event made errors equally often in answering questions about the event and the intruder. The questions about the event were designed so that some of them led children towards what they would have expected based on their prior knowledge. For example, one of the event questions asked children "how many candles were on the cake?". Although there was not a cake, children's prior knowledge would lead them to expect a cake to be present at the party. An accurate answer to this question would be denial of the existence of a cake. The good performance on the event questions

meant resisting suggestive questions about things that could have happened but did not actually occur as well as correctly remembering the actions and details that did happen in the event. Thus, although script structure may be a generalized memory representation, it supports memory for specific experiences.

Script structure could support memory at either the encoding and/or retrieval stage (Ornstein et al., 1995). Schank (1982) proposed that script theory involves a process of expectation and expectation failure. When a scene is encountered, it is matched to an existing representation which carries the expectation that certain parts of the scene will be present and certain events will precede and other events will follow that scene. Thus, at encoding, children's expectations are used to understand what is occurring. However, in the present study, children in both the birthday party and play event showed no difference in recall at the immediate interview. Availability of a birthday party script structure did not make a difference in memory initially. This may be because children in both groups performed well on the immediate interview. Birthday party children answered approximately 72% of the 16 memory questions correctly while play children were correct on 70% of the questions.

In contrast to Fivush's (1984) work, which found that specific information was difficult to retrieve in the context of script memory, this research finds that script structure aids the retrieval process. The script representation contains a number of variables associated with the event, these are used as cues to recall the specific experience. Ornstein et al., (1995) maintain that children self-generate a recognition test involving the presence or absence of the script activities in the actual event. The script provides a framework that structures recall of the specific experience.

### Memory for Deviations from Script

In the case of eyewitness memory, children may be asked about aspects of events that did not fit their scripts. To investigate this issue, the events were designed to include two types of deviations: deletion-from-script deviations and addition-to-script deviations. Nelson and Gruendel (1981) maintain that the generalized event representation is formed from repeated experience with the same event. Variations in experiences open slots in the script. A general script develops with slots that are filled in with specific items for each experience with the event. It is the slot fillers or absence of slot fillers that are remembered well as the deletion-of-script deviations. Children expect the slots to be filled and have a way to classify what variables fill each slot and what was missing if the slot was left empty. The addition-to-script deviations involve events that were unexpected and do not have an already established "slot". These events cannot be easily classified and therefore are not remembered well.

In the present study, to perform well, children had to remember the specific experience which included actions, props, and details in the event that were deviations from the expected script. Deletion-from-script deviations included questions, like the one involving the presence of a cake, about things that were expected to occur, based on prior knowledge, but were absent from the event. Results of this study indicated that after two weeks, children in the birthday group performed better on the event questions than children in the play group. That is, birthday children were accurate on questions regarding things that would have been script consistent, but that did not occur in the actual event. Thus, having a script did not increase suggestibility on deletion-from-script deviations.

This finding supports the script pointer + tag hypothesis (Graesser et al., 1979; Schank, 1982) which predicts that event script items are incorporated into



the general script but atypical items are tagged as a separate entity and therefore the details of the event are maintained. Similarly, Nelson and Hudson's (1988) general functional model of script development predicts that when an episode does not fit a script it is tagged as deviant and remembered distinctly. In the present study, the absence of actions and items that would have been expected to happen may have been especially noticed by children, and tagged as memorable, thus enabling them to resist suggestion. Thus, children are not more suggestible on deletion-from-script deviations.

Children's memory for a second type of deviation was also investigated: addition-to-script deviation. During both the play and birthday events, an intruder entered, went through a series of actions, and then left. This was an unexpected episode for both groups. None of the children had prior knowledge with or a script for the intruder visit. Thus, questions about the intruder allowed us to examine children's recall in the absence of a script or prior knowledge. At both the immediate and delayed interviews, children had difficulty recalling this part of the event and there was no difference between what children in the birthday party and play groups did recall about the intruder. Thus, it is not the case that birthday party participants just had better memories, because in the absence of a script, memory performance was equivalent for both groups.

In sum, the two types of script deviations in the event had differential effects on children's memory. Non-expected addition-to-script deviations (intruder visit) were recalled poorly at both the short term interview and especially after a two week delay. However, script expected items that were absent from the actual event (deletion-from-script deviations) were recalled accurately at both the immediate and delayed interview.

### Implications for Eyewitness Memory

These findings have implications for eyewitness memory. Given that script structure seems to help memory but addition-to-script deviations are not remembered well, we can make several predictions about child witness ability in an actual crime event. Experiences that are unexpected and difficult to understand should not be well remembered by children. However, children should be quite accurate in recalling the parts of the event that fit with their prior knowledge. A number of studies have examined children's memory for visits to the doctor or other specialized events (Gordon, Ornstein, Nida, Follmer, Crenshaw, & Albert, 1993; Merritt et al., in press; Warren & Swartwood, 1992). These studies have shown children's memory for these events to be quite accurate even over long delays. However, children's prior knowledge about the event has not often been measured. It may be the case, as this study suggests, that children have a script structure for the event which aids their memory. In fact, Ornstein et al., (1995) found that memory performance for a specific medical experience was linked to children's prior knowledge of the event.

This study was also designed to investigate how delay and number of interviews affected children's recall. Overall, children's memory was significantly worse after two weeks. This finding was especially apparent in the children who did not participate in an immediate interview. Although all children correctly answered 55% of the memory questions at the delayed interview, and did just as well on suggestive questions as factual questions, children who were able to rehearse their memory through an immediate interview performed better on the delayed interview than children who only participated in the delayed interview. The immediate interview helped sustain children's memory over time and did not cause them to be more suggestible. This is consistent with work by Poole and Warren (1995) who found that non-

leading repeated interviews helped to reduce forgetting in children. Other researchers have also found that a rehearsal interview shortly after the event facilitated long-term memory (Portwood & Reppucci, 1995; Geiselman, Saywitz, & Bortnstein, 1991; Price and Goodman, 1990; Saywitz, Geiselman, & Bornstein, 1992; Saywitz & Snyder, 1993).

One possibility is that the better memory shown at the two week delayed interview, by children with a previous interview, may be due to a familiarity effect. Children who experienced the immediate interview were familiar with the interview room and question format while children in the delayed interview only condition were not. Thus, familiarity may have permitted the children to feel more relaxed and comfortable at the two week interview. The groups may therefore have experienced different levels of stress. Stress has sometimes been shown to have a negative effect on children's recall (Goodman, Rudy, Bottoms, & Aman, 1990; Goodman, Bottoms, Schwartz-Kenney & Rudy, 1991; Pillemer, 1992). However, children had a different adult interviewer for the second interview; thus the benefit of an immediate interview was not due to familiarity with the interviewer. The groups had also been rated similarly in their general reactions to strange persons and situations. In addition, parents were always present in the room with the child and stress levels appeared low. Thus, it does not seem likely that familiarity led to reduced stress which in turn allowed better memory for the group with the previous interview. Of course, familiarity with the structure of the interview itself and the form and content of the questions may play a role. Future work is needed to explore in more detail how children's familiarity with a particular setting might affect memory.

## Suggestibility

A third goal of the research was to investigate children's susceptibility to suggestion. In contrast to prior work, this research found children not particularly suggestible. Even after two weeks, children did equally well answering suggestive questions and factual questions. Children resisted suggestion even when it implied something that based on their prior knowledge could have occurred.

Whether children are suggestible or not may depend in part on the question asked. For example, in this study factual recognition questions were answered most accurately, then suggestive recall questions, and then factual recall questions; children performed worst on suggestive recognition questions. This particular pattern of performance may have been due to several specific questions. For instance, factual recall questions may have elicited less accurate answers because they included the question regarding what the intruder was wearing. A correct answer to this question involved describing how the intruder was dressed on both the top (shirt) and bottom (pants). Only 5 children on the delayed interview were able to give a full correct answer. This question required significantly more description than other questions and may therefore have been especially difficult. In addition, children's worst performance was on the suggestive recognition questions. Children seemed to be particularly suggestible on the question "were his sunglasses in his hand or in his pocket?". In fact on the delayed interview 24 children fell for the suggestion; the majority (21) answering that they were in the intruder's pocket. Although the intruder did not have sunglasses, children may have reasoned that since they did not see glasses, they must have been in the intruder's pocket. It may be the case that more difficult or ambiguous questions increase children's errors and apparent

susceptibility to suggestion. The issue needs to be further examined in future studies.

One possibility suggested by script theory is that prior knowledge might increase suggestibility. Yet the present results showed that script structure does not make children more or less suggestible; children in the birthday party and play groups answered suggestive questions equally well. Results of this study did not find that script representations negatively affected memory by biasing recall in the direction of prior knowledge, nor did absence of a script make children especially suggestible to questions about the intruder. On the other hand, there was some preliminary indication that absence of a script might increase vulnerability to suggestion over time. Although not statistically significant, the worst memory performance was found for children in the play group on suggestive questions after two weeks. It might be the case that over longer delays or with a larger sample size, greater suggestion effects would be noted in these children.

\* In the ongoing debate about susceptibility to suggestion, this research supports the idea that children are not particularly suggestible (Beal, et al., 1995; Portwood & Reppucci, 1995; Goodman, Aman, & Hirschman, 1987; Merritt et al., in press; Saywitz, Goodman, Nichols, & Moan, 1989; Warren & Swartwood, 1992). Previous research has claimed that children might be more suggestible in the direction of their prior knowledge expectations (Ceci, et al., 1981) and especially suggestible after a delay which increases reliance on the generalized event representation (Graesser et al., 1980). The present study did not find that children with script knowledge were more susceptible to suggestion. These five-year old children were equally able to answer the factual and suggestive questions correctly.

## Lineup Identification

In assessing children's memory for the event, children's ability to recognize the intruder was investigated. Overall, children did well in identifying the intruder and there did not appear to be any differences between the birthday party and play groups on the identification task. Children who experienced both an immediate and delayed interview were as accurate on the second interview as they were on the first, whereas performance was lower for children in the delayed interview only condition. It can be concluded that the first interview helped to sustain memory for the intruder. Performance of the children who received two interviews supports previous work that maintains that children are likely to make a correct identification on a target present task about half of the time (Wells, 1993). This is consistent with adult identification performance.

Children also refused to make an identification more often than has been reported in the past (Beal et al., 1995). Their failure to identify one of the lineup photographs as the intruder was not related to their personality score. This finding may result from the fact that the identification task always occurred after the memory interview in which correct responses to suggestive questions were 'no' or 'I don't know'. Thus, by the end of the session, children may have been quite comfortable in voicing a decision not to choose anyone from the identification lineup.

Although children seemed to show generally accurate memory for both the interview questions and identification task, performance has to be interpreted in view of the fact that the interviews were not stressful. As previously mentioned, parents were always present in the room and children were made to feel comfortable in giving 'no' or 'I don't know' answers. The situation may be entirely different when considering a traumatic experience in a real life setting (Peters, 1991, 1994; Goodman & Reed, 1986).

### Conclusion

Finally, several concerns arise that may limit interpretations of the results of this study. First, although there was a statistically significant difference in the long-term memory performance of the birthday party and play groups, the difference was not large in absolute terms. On the whole, the play group performed fairly well on the interview questions. Given that for one group a script structure was available to aid recall, and for the other group it was not, the differences between the groups might have been expected to be larger. It is possible that the children in the play group also interpreted the event in terms of a birthday party script. Although only four children referred to items or actions of a birthday party, other children might have noticed the similarities between the play session and a birthday party and merely failed to comment on them.

There is also concern regarding the children who experienced both the immediate and delayed interviews. Their good memory performance might have reflected rehearsal or discussions with parents during the delay interval. On the other hand, parents can sometimes use an ineffective questioning style that has a negative effect on children's memory (Ricci, Beal, & Dekle, 1995). Of course, in a real life child witness case, there would be extensive discussion in the home. Further, even if parents in this study did help children discuss the event, it fails to explain the differences in memory performance between the birthday party and play group and the differences in memory on the event and intruder questions.

In conclusion, the results of this study indicate that children seem to have accurate memory for an experienced event even after two weeks. Script structure supports memory and even increases children's ability to remember deletion-from-script deviations; events that children do not have a script for are more difficult to remember. These findings have serious implications for child

witnesses and the legal system. In cases of real witnessed events, predictions about memory will depend on the type of deviation from scripts that occurred. Events about which children have prior knowledge or expectations are going to be remembered better than events that lack a script representation. Nonetheless, five-year old children have shown that they can be generally accurate witnesses; they are not easily suggestible, they are able to identify a perpetrator, and they can accurately remember details over a two week delay.



APPENDIX A  
PRELIMINARY DATA OF THE BIRTHDAY PARTY PILOT STUDY

Frequency of items mentioned regarding a birthday party

QUESTION	<u>n</u>	Frequency
<b>1. What Happens at a Birthday Party?</b>	10	
cake		7
presents/ toys		5
play games		5
other food		5
friends/ guests		3
balloons		2
<b>2. When do you open the presents?</b>	10	
after you eat		10
<b>3. What songs do you sing at a birthday party</b>	10	
Happy Birthday		5
no song		5

Mean ratings of both script-typical and script-atypical birthday items

Questions	items rated*	mean ratings	
There was a ... at the birthday party?	cake	2.6	
	pie	1.5	
	bread	1.0	
	soup	1.1	
When the present was opened, inside was ...	cottonballs	1.4	
	snowboots	2	
	lamp	1.6	
	books	1.8	
At the birthday party, someone ...	delivered a package	1.4	
	wearing torn clothes and sunglasses asked for a sandwich	1.1	
	unknown person	1.2	
	took a picture		
	asked to borrow a pencil	1.0	
	There was a party at ...	office	1.2
		supermarket	1.0
bowling alley		1.7	

\*based on a 3=always, 2=sometimes, 1=never happens rating scale

Mean ratings of the degree to which an event would still be a birthday party

Question	Mean Score*
What if there was no cake?	2.1
What if there were no presents?	2.2
What if there were no presents and no cake?	1.8
What if there were no decorations?	1.9
What if there were no games?	2.3

\* Based on a 3-point rating scale  
(1=no party, 2=a party but not a birthday party, 3= still a birthday party)

APPENDIX B  
CONSENT FORMS

SAMPLE CONSENT FORM FOR  
THE TWO-INTERVIEW GROUP

I understand that my child and I will participate in a 2 session research project on how children's prior knowledge can affect young children's memory, identifications, and suggestibility.

- \*My child will participate in a mock birthday party (play session)
- \*My child will then be asked by an experimenter some questions about the event, along with a set of identification photographs.
- \*The first session lasts about 15 minutes during which time I will be asked to fill out some questionnaires (about my child's experience with birthday parties).

I understand that the birthday party (play) session will be videotaped. The birthday party event (play event) will later be viewed by other children in order to evaluate if watching the event on television affects memory.

I understand that the interview will be audio taped only to insure an accurate record of what my child remembers.

- \*The audio tapes, videotapes, and any research notes are anonymous; my name and my child's name will not be recorded.

\*I understand that I can decide to end our participation at any time for any reason.

I understand that my child and I will be asked to return in 2 weeks for a follow up session lasting about 10 minutes. Again my child will be interviewed and the session will be audio taped.

I agree to participate, and to allow my child to participate in this project.

Parent's signature \_\_\_\_\_

Child's name \_\_\_\_\_

Date of session \_\_\_\_\_

SAMPLE CONSENT FORM FOR  
THE ONE-INTERVIEW GROUP

I understand that my child and I will participate in a 2 session research project on how children's prior knowledge can affect young children's memory, identifications, and suggestibility.

- \*My child will participate in a mock birthday party (play session).
- \*The first session lasts about 15 minutes during which time I will be asked to fill out some questionnaires (about my child's experience with birthday parties).

I understand that the birthday party (play) session will be videotaped. The birthday party event (play event) will later be viewed by other children in order to evaluate if watching the event on television affects memory.

I understand that my child and I will be asked to return in 2 weeks for a follow up session lasting about 10 minutes. At this time my child will be asked questions by an experimenter about the birthday party (play) event.

I understand that the interview will be audio taped to insure an accurate record of what my child remembers.

- \*The audio tapes, videotapes, and any research notes used throughout this project are anonymous; my name and my child's name will not be recorded.

\*I understand that I can decide to end our participation at any time for any reason.

I agree to participate, and to allow my child to participate in this project.

Parent's signature \_\_\_\_\_

Child's name \_\_\_\_\_

Date of session \_\_\_\_\_

APPENDIX C  
BIRTHDAY PARTY PARENT QUESTIONNAIRE

Child's name: \_\_\_\_\_  
Child's date of birth: \_\_\_\_\_

1. Please describe your child's last birthday party?
2. Please estimate (circle) how many birthday parties your child has been to:  
never(0)      1-5      5-10      10+
3. How many birthday parties has your child been to in the last:  
week \_\_\_\_\_  
month \_\_\_\_\_  
year \_\_\_\_\_
4. When was the last birthday party your child attended? \_\_\_\_\_
5. Does your child own any books about birthday parties? \_\_\_\_\_  
If so how many books about birthday parties? \_\_\_\_\_
6. Does your child watch any video about birthday parties? \_\_\_\_\_  
If so how often does is the birthday party video watched? \_\_\_\_\_
7. Does your child attend school, day care or any after school programs and do they celebrate birthdays with parties? \_\_\_\_\_  
  
How many of these types of parties would you estimate your child has been to? \_\_\_\_\_



8. Please look through the following items and check which ones were present at your child's last birthday party? (the following list is based upon many children's experiences, please do not feel that your child must have experienced all of the items listed below, we are just looking to find out what any one particular child would be familiar with.)

- |                                                     |                                                |
|-----------------------------------------------------|------------------------------------------------|
| <input type="checkbox"/> chocolate cake             | <input type="checkbox"/> theme party           |
| <input type="checkbox"/> white cake                 | (please indicate theme)                        |
| <input type="checkbox"/> marble cake                | <input type="checkbox"/> pizza                 |
| <input type="checkbox"/> chocolate frosting         | <input type="checkbox"/> chips/snacks          |
| <input type="checkbox"/> vanilla frosting           | <input type="checkbox"/> duck duck goose       |
| <input type="checkbox"/> other frosting             | <input type="checkbox"/> tic tac toe toss      |
| <input type="checkbox"/> cupcakes                   | <input type="checkbox"/> pin the tail on       |
| <input type="checkbox"/> other dessert              | the donkey                                     |
| <input type="checkbox"/> goodie bags                | <input type="checkbox"/> scavenger hunt        |
| <input type="checkbox"/> birthday candles           | <input type="checkbox"/> pool party            |
| <input type="checkbox"/> balloons                   | <input type="checkbox"/> face painting         |
| <input type="checkbox"/> streamers                  | <input type="checkbox"/> singing happy         |
| <input type="checkbox"/> happy birthday banners     | Birthday                                       |
| <input type="checkbox"/> other decorations          | <input type="checkbox"/> pony rides            |
| <input type="checkbox"/> clowns                     | <input type="checkbox"/> baking a cake         |
| <input type="checkbox"/> magician                   | <input type="checkbox"/> blowing out           |
| <input type="checkbox"/> other performer            | candles                                        |
| <input type="checkbox"/> helping buy gift for other | <input type="checkbox"/> receiving             |
| <input type="checkbox"/> sending birthday cards     | birthday cards                                 |
| <input type="checkbox"/> opening presents           | <input type="checkbox"/> wrapping presents     |
| <input type="checkbox"/> friends only party         | <input type="checkbox"/> family/relative party |

Please feel free to list anything else that you think is relevant that was not mentioned.

APPENDIX D  
CHILD COMFORT QUESTIONNAIRE

PLEASE RATE HOW USUAL OR UNUSUAL IT IS FOR YOUR CHILD TO BE  
FEARFUL, SHY OR TIMID IN THE FOLLOWING SITUATIONS:

- |                                                                                                     |   |   |                             |                             |   |   |                 |
|-----------------------------------------------------------------------------------------------------|---|---|-----------------------------|-----------------------------|---|---|-----------------|
| 1. <i>Meeting a new babysitter for the first time</i>                                               | 1 | 2 | 3                           | 4                           | 5 | 6 | 7               |
| very usual                                                                                          |   |   | sometimes,<br>sometimes not |                             |   |   | very<br>unusual |
|                                                                                                     |   |   |                             |                             |   |   |                 |
| 2. <i>Going to the doctor for a checkup</i>                                                         | 1 | 2 | 3                           | 4                           | 5 | 6 | 7               |
| very usual                                                                                          |   |   |                             | sometimes,<br>sometimes not |   |   | very<br>unusual |
|                                                                                                     |   |   |                             |                             |   |   |                 |
| 3. <i>Meeting a dog that he or she doesn't know on the street</i>                                   | 1 | 2 | 3                           | 4                           | 5 | 6 | 7               |
| very usual                                                                                          |   |   |                             | sometimes,<br>sometimes not |   |   | very<br>unusual |
|                                                                                                     |   |   |                             |                             |   |   |                 |
| 4. <i>Meeting a child of the same age that my child doesn't know</i>                                | 1 | 2 | 3                           | 4                           | 5 | 6 | 7               |
| very usual                                                                                          |   |   |                             | sometimes,<br>sometimes not |   |   | very<br>unusual |
|                                                                                                     |   |   |                             |                             |   |   |                 |
| 5. <i>Meeting an unfamiliar adult outside of the home (e.g., a librarian, swim teacher, barber)</i> | 1 | 2 | 3                           | 4                           | 5 | 6 | 7               |
| very usual                                                                                          |   |   |                             | sometimes,<br>sometimes not |   |   | very<br>unusual |

6. Meeting a stranger who comes to your home (e.g., a family friend that the child doesn't know)

1	2	3	4	5	6	7
very usual			sometimes, sometimes not			very unusual

7. Going to a new place (e.g., a big store, park, airport)

1	2	3	4	5	6	7
very usual			sometimes, sometimes not			very unusual

8. It would take more than 10 minutes for my child to feel at ease in a new place

1	2	3	4	5	6	7
very usual			sometimes, sometimes not			very unusual

APPENDIX E  
PARALLEL BIRTHDAY PARTY AND PLAY EVENTS

Birthday Party Event	Standard	Play Session Event
presents	Put objects into containers	boxes
	Place objects on counter	
	Sit at table	
	Introduced to bear	
party hats	Put on hats	baseball caps
pin the tail on the donkey	Play game	map game
	Sit at table	
Happy Birthday	Sing song	Barney Song
	Intruder enters	
present	Intruder leaves with container	box
	Bear tries to guess what is in other containers	
	Bear opens other containers	
	Child has picture taken with the bear	
	Session ends	

APPENDIX F  
INTERVIEW QUESTIONS

Free Recall Question

What happened at Corey the bear's birthday party/ play time?  
Anything else??

Event Questions

1. Let's talk about the party/play time.....What song did you sing?
2. What did the napkins look like?
3. Did you play pin-the-tail on the donkey or the map game?
4. How many candles were on the cake?
5. Were the plates yellow or blue?
6. When Corey opened the boxes/presents, did he find candy or crayons?
7. Was there a flowerpot or a bowl of popcorn on the counter?
8. What color was the balloon that popped?

Intruder Questions

1. Ok now remember that guy that came in, what kind of clothes was he wearing? on top? on bottom?
2. What did he do?
3. Were his sunglasses in his hand or in his pocket?
4. What kind of food did he steal from the table?
5. What was on his sweatshirt, a dog or a bird?
6. What color was his backpack?

7. Where did he throw the toy after he ripped open the box, on the counter or in the trash can?

8. Did he slam the door or leave it open when he left the room?

Other (Filler) Questions

1. What kind of juice did you drink?

2. How old do you think he was?

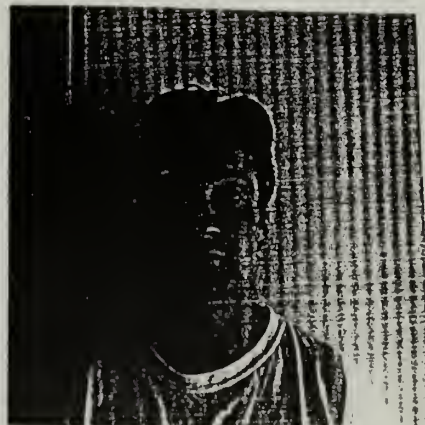
3. What color was his hair?

4. After he left, what sorts of things were you doing at the party/play time with Corey?

Identification Task

Now I would like you to look closely at some pictures and tell me if you see the person that took the Corey the bear's box/present? His picture might not be here so if you don't see it don't pick anyone.

# APPENDIX G INTRUDER IDENTIFICATION LINEUP



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