

The NICHD Investigative Interview Protocol: An Analogue Study

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One hundred twenty-eight 5- to 7-year-old children were interviewed using the National Institute of Child Health and Human Development (NICHD) Investigative Interview Protocol about an event staged 4 to 6 weeks earlier. Children were prepared for talking about the investigated event using either an invitational or directive style of prompting, with or without additional practice describing experienced events. The open invitation prompts (including those using children's words to encourage further reporting) elicited more detailed responses than the more focused directive prompts without reducing accuracy. Children were most responsive when they had received preparation that included practice describing experienced events in response to invitation prompts. Overall, children were highly accurate regardless of prompt type. Errors mostly related to peripheral rather than central information and were more likely to be elicited by directive or yes/no questions than by invitations. Children who provided accounts when asked about a false event were less accurate when describing the true event. Children who received preparation that included practice recalling a recent event in response to directive and yes/no questions were least accurate when questioned about the false event first. The data provide the first direct evaluation of the accuracy of information elicited using different prompt types in the course of NICHD Protocol interviews, and underscore the importance of how children are prepared for subsequent reporting.

Keywords: children's memory, eyewitness testimony, forensic interviews, interviewing protocols, suggestibility

Several decades of research have established that the information child witnesses provide is profoundly affected by vari-

ations in the way they are interviewed (see Brown & Lamb, 2009; Goodman, Quas, & Ogle, 2010; Lamb, LaRooy, Malloy, & Katz, 2011; Saywitz & Camparo, 2009, for recent reviews). Many researchers have examined the effects of different questioning strategies on both the amount and accuracy of information elicited from children of varying ages (e.g., Dent, 1986; Saywitz, Goodman, Nicholas, & Moan, 1991; Waterman & Blades, 2000, 2001, 2004), as well as the question types and conditions that may lead to heightened (or diminished) suggestibility (e.g., Ceci & Bruck, 1993, 1995; Goodman, Bottoms, Schwartz-Kenney, & Rudy, 1991; see Malloy & Quas, 2009 for review). This research has informed recommendations about how best to facilitate children's recall and reporting of experiences without compromising their reliability (e.g., American Professional Society on the Abuse of Children (APSAC), 2012; Ministry of Justice, 2011).

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Professional Guidelines and Protocols

In addition to professional guidelines, several interview protocols or techniques integrating findings from social, cognitive, and applied developmental research have been developed to aid interviewers trying to elicit accurate descriptions of experienced events

from children (see Brown & Lamb, 2009, for a description and review of interviewing protocols). The Cognitive Interview (CI), originally developed for use with adult witnesses, has proven useful in this regard (see LaRooy, Brown, & Lamb, 2013; Memon, Meissner, & Fraser, 2010 for recent reviews). Developmentally appropriate versions of the CI can help children report more detailed information without compromising the relative accuracy of that information (Akehurst, Milne, & Köhnken, 2003; Geiselman & Padilla, 1988; Holliday, 2003; Holliday & Albon, 2004; Larsson, Granhag, & Spjut, 2003; Milne & Bull, 2003; Saywitz, Geiselman, & Bornstein, 1992). However, researchers have yet to examine the CI with children in the field, where they may have experienced emotionally arousing or traumatic events and may often be interviewed following considerable delays (Memon et al., 2010). Such studies would thus usefully complement existing analogue research.

Narrative Elaboration Training (NET) was developed by Karen Saywitz and her colleagues to help children overcome the cognitive, social, and linguistic deficits that might make their reports sparse (Saywitz & Snyder, 1993, 1996). NET provides children with practice and feedback when reporting past events prior to an interview focusing on a “target event.” Open-ended and specific verbal prompting is complemented by visual cue cards to prompt for information in forensically important categories (location, action, participants, and conversation/affect). Several variants of the NET package have been examined in laboratory-based studies (e.g., Bowen & Howie, 2002; Brown & Pipe, 2003a, 2003b; Camparo, Wagner, & Saywitz, 2001; Dorado & Saywitz, 2001; Elischberger & Roebbers, 2001; Nathanson, Crank, Saywitz, & Reugg, 2007; Peterson, Warren, & Hayes, 2013), and have shown that children interviewed using these techniques report more information, without increased error, especially in response to the visual cue cards. As with the CI, field studies and those that more closely approximate the delays and kinds of events characterizing many forensic interviews would complement the existing research base.

Although the various protocols and professional guidelines differ in some respects, common elements can be identified. Most importantly, they universally emphasize the elicitation of as much information as possible using open-ended invitations that are likely to elicit narrative accounts and give control of the information-sharing process to children. The importance of establishing rapport and explaining interview ground rules are universally highlighted, and practice recalling events (episodic recall) is widely recommended. Many researchers have shown, however, that forensic interviewers often fail to use recommended techniques, even after intensive training (e.g., Davies, Westcott, & Horan, 2000; Lamb et al., 2002; Powell, Fisher, & Wright, 2005; Thoresen, Lønnum, Melinder, Stridbeck, & Magnussen, 2006; Walker & Warren, 1995; see review by Lamb, Hershkowitz, Orbach, & Esplin, 2008). Researchers at the National Institute of Child Health and Human Development (NICHD) thus created a flexible interview protocol that operationalized the recommendations derived from research (Orbach et al., 2000; Sternberg, Lamb, Orbach, Esplin, & Mitchell, 2001) to help forensic investigators conduct developmentally appropriate interviews with children.

Research With the NICHD Investigative Interview Protocol

Field studies in a range of countries have shown that interviewers trained to use the NICHD Investigative Interview Protocol are more likely to follow best practice recommendations than they were before (e.g., Canada: Cyr & Lamb, 2009; U.K.: Lamb et al., 2009; Israel: Orbach et al., 2000; U.S.A.: Sternberg et al., 2001). Interviewers following the NICHD Protocol used more open-ended prompts (invitations), which tap recall memory processes, thereby promoting narrative reporting, and fewer option-posing or suggestive questions, which tap recognition memory processes, than they did before the training. The majority of children in these studies provided substantially more forensically relevant details in response to open-ended invitation prompts than did children interviewed by the same interviewers prior to training. Such open invitations also create a child-led interview process, whereby the child can respond in a variety of ways and is not limited to providing a particular type of information as may be the case when responding to specific prompts and questions. When children provide elaborative, narrative responses, there is both more scope for interviewers to refer to these responses in other questions and less need for interviewer-led questions that can be suggestive.

The effectiveness of the NICHD Protocol in eliciting detailed accounts has been demonstrated with a range of interviewees, including children who are very young (4- to 8-year-olds, Lamb, Sternberg, Orbach, Esplin, et al., 2003; Hershkowitz, Lamb, Orbach, Katz, & Horowitz, 2012), have intellectual disabilities (Brown, Lamb, Lewis, & Stephens, 2012; Brown, Lewis, Lamb, & Stephens, 2012; Dion & Cyr, 2008), are witnesses rather than victims (Lamb, Sternberg, Orbach, Hershkowitz, & Horowitz, 2003), and are the alleged perpetrators of crimes (Hershkowitz, Horowitz, Lamb, Orbach, & Sternberg, 2004; Lamb, Orbach, Hershkowitz, Horowitz, & Abbott, 2007). Recent research suggests that the flexibility of the NICHD Protocol is important and that different approaches may be more useful with different populations. For example, the NICHD Protocol was most effective with 3- and 4-year-old children when interviewers made extensive use of directive recall-based prompts rather than more open prompts (Hershkowitz et al., 2012). Simply increasing children’s responsiveness, however, is not sufficient to promote the adoption of an interviewing method; the information elicited needs to be relevant and accurate.

Accuracy of Information Elicited

There is relatively little research on the accuracy of the information elicited using the NICHD Protocol because field researchers seldom know exactly what happened. Thus the accuracy of information obtained in field studies can usually be inferred only by extrapolating from laboratory studies on the relative efficacy of different types of prompts in eliciting accurate information (see Lamb et al., 2008; Lamb et al., 2007, for reviews). That is, the improved accuracy of children’s responses has been inferred because users of the NICHD Protocol use more recall-based prompts, which elicit more accurate information than recognition-based (i.e., forced choice or suggestive) prompts in laboratory analogue studies (see Lamb et al., 2008, for a review). Only when objective records of the alleged crimes have been available has it been

possible to demonstrate in field studies that open-ended prompts elicit more accurate information than forced choice (or option-posing) and suggestive questions, just as they do in the research laboratory. For example, both Lamb and Fauchier (2001) and Orbach and Lamb (2001) reported more self-contradictions in response to option-posing and suggestive questions as opposed to open invitations, suggesting differences in accuracy (i.e., inconsistency was used as a proxy for accuracy). Similarly, information provided by alleged victims in response to invitations was more likely to be corroborated by the suspected perpetrators of those crimes than information reported in response to recognition prompts, although there were relatively few details that were addressed by both interviewees (Lamb et al., 2007). Thus with the exception of Lamb et al.'s (2007) study, the accuracy of children's responses during a NICHD Protocol interview has only been indirectly evaluated. Field studies have obvious advantages in that the interviewing techniques are studied in the actual forensic contexts to which generalization is sought, but analogue studies in which known experiences are described are also necessary. Indeed, the convergence of findings obtained in both types of study provides the strongest basis for recommendations regarding practice in the field (Lamb & Thierry, 2005). There remains a need, therefore, to evaluate the NICHD Protocol in more controlled circumstances.

Relative Efficacy of Different Interviewer Prompts

The first goal of the current study was to directly evaluate the accuracy of information elicited from children in response to various types of prompts or questions within NICHD Protocol interviews by comparing children's accounts with objective records of a staged event they had experienced. We were particularly interested in comparing the efficacy of the open-ended recall and focused prompts, namely *invitations* and *cued invitations*, designed to tap recall memory and facilitate narrative or multiword reporting relative to more specifically focused prompts designed to tap recall (*directive prompts*) or recognition (*option-posing and suggestive prompts*) memory.

The NICHD Protocol emphasizes the use of the most open recall-based prompts (e.g., "tell me everything that happened," "tell me everything you can about that," "tell me more") that do not constrain children's responses to a particular category of information. Such prompts are called "*invitations*" and resemble the typical introductory free-recall prompts used in many laboratory-based studies. Instead of being limited to the first phase of the interview as is often the case in laboratory-based studies using tightly controlled scripts, however, such prompts are encouraged throughout NICHD Protocol interviews, especially after use of the more specific follow-up prompts described below.

Cued invitations are also recall-based prompts and use children's disclosed contents (in their own words) as prompts for further reporting, either to elicit additional detail (e.g., "you said he gave you a special cuddle, tell me more about the special cuddle"), or to request additional information about the sequencing of events mentioned by the child (e.g., "tell me what happened right before/after the special cuddle," or "tell me what happened after he took you to the room and before your mother called out to you"). Cued invitations differ from cued recall prompts used in laboratory

studies, which are often provided by interviewers regardless of the child's prior statements.

Directive questions are also recall-based and also focus on information mentioned by the child but request a particular *category* of additional information. These are mostly "wh" (e.g., "who," "where," etc.), questions and typically elicit a single word or phrase in response, although longer responses are possible when the prompts are less narrow. Directive questions would be coded as cued recall questions in most laboratory studies and are often introduced regardless of what information the child has provided.

Thus, the recall-based prompts distinguished in NICHD Protocol studies differ from each other with respect to the role of the interviewer in broadening or constraining the child's focus. Further, invitations and cued invitations not only allow children to shape the focus of their response, but are likely to elicit multiword or narrative responses, whereas directive prompts may elicit single-word or -phrase responses that call for additional prompting to gain complete narrative accounts.

Questions and prompts that tap recognition memory are variously referred to as forced choice, multiple choice, closed, and yes/no questions in laboratory studies. We refer to these as '*option-posing*' prompts that ask the child to confirm, negate, or select among specific interviewer-generated options. These include multiple option questions (was it red or white?) as well as yes/no questions where the options are implicit (was it red? [yes or no?]). *Suggestive* prompts imply the expected response to information introduced by the interviewer but not previously disclosed by the child. Although suggestive prompts may often be formulated as option-posing, particularly yes/no, questions, prompts formulated as recall-based questions including invitations may also be suggestive. For example, the prompt "tell me everything about what happened at the *ice arena*," although formulated as an invitation, is suggestive if the child had not previously mentioned the ice arena. Similarly, an interviewer's question "Did it hurt when he touched you?" would be coded as option-posing if the child had mentioned 'he touched me,' but suggestive if not. Both how the prompt is formulated and how the content of the prompt relates to the information the child has already reported are important in defining the prompt type.

Different formulations of recall and recognition-based prompts and questions, as well as suggestive questions, have been compared in many studies (e.g., Peterson, Dowdin, & Tobin, 1999) but the prompts recommended and used in the NICHD Protocol, including cued invitations, have not been examined directly. Nor have different kinds of prompts been examined in the context of a full interview designed to be a direct analogue of a field interview, with for example, the invitations (free recall prompts) used throughout the interview rather than only in the introductory phase. In the present study, we expected that invitations and cued invitations would elicit the most details from children, relative to the number of prompts posed, as has been found in field studies. We also expected accuracy to be highest for the invitational prompts, as documented in numerous analogue studies (e.g., Dent, 1986; Dent & Stephenson, 1979; Hutcheson, Baxter, Telfer, & Warden, 1995). We expected directive prompts to be less productive than invitations, again following findings from prior field and analogue studies, and to elicit a high proportion of erroneous information because of the increased focus on a category of information requested by the interviewer. Because the NICHD Protocol dis-

courages the use of closed and suggestive prompts, we expected these to be relatively infrequent and to be the least productive in eliciting information when they were used. We also expected the information elicited by option-posing and suggestive prompts to be the least accurate insofar as they may encourage guessing, compliance with the interviewer's expectations, or responding even when the child is uncertain.

Preparatory Interview Practices

The second aim of the study was to explore whether the way in which interviewers prepared children for the interview affected their later recall. Interviewers are routinely advised to motivate cooperativeness by establishing rapport before focusing on the event(s) of interest although little is known about the effects of different rapport-building strategies. They are also encouraged to prepare children for their task as informants, typically by discussing the "ground rules" (including the acceptability of "don't know" responses, correcting the interviewer, and telling as much as they know), and, in some guidelines and protocols, eliciting "practice narrative" accounts of experienced events. Previous field (Sternberg et al., 1997) and analogue (Roberts, Lamb, & Sternberg, 2004) studies showed that rapport-building using open-ended prompts increased the amount of information children provided in response to such prompts during subsequent questioning about the investigated incident. According to Sternberg et al. (1997) and Roberts et al. (2004), these techniques may have benefited the children by communicating the purpose and rules of the interview procedure, giving children control over the process (information the children had provided was used when prompting), and teaching children what kinds of detailed information was expected of them. Providing children with opportunities to talk in detail about recent past events allows practice in retrieving and reporting detailed episodic information, fosters familiarity with the types of prompts to be used in the interview, and promotes awareness of the level of detail required for interviewers to understand the children's experiences (Brubacher, Roberts, & Powell, 2011; Roberts, Brubacher, Powell, & Price, 2011). Explicit training (e.g., as in the NET protocol) in reporting past events prior to the interview does not always facilitate free recall reporting (e.g., Brown & Pipe, 2003a, 2003b; Camparo, Wagner, & Saywitz, 2001; Saywitz & Snyder, 1996), however, and it is unclear whether the extended rapport-building included in the NICHD Protocol has sociomotivational (e.g., increasing children's confidence and control) or cognitive (e.g., training in metalinguistic aspects of the interview) effects (Brubacher et al., 2011; Hershkowitz, 2011; Roberts et al., 2011).

Further, some findings have raised doubts about the value of the preparatory phase of the interview. Specifically, there is sometimes a negative association between the length of rapport building and children's productivity in the substantive part of the interview (Davies et al., 2000; Hershkowitz, 2009; Teoh & Lamb, 2010). This suggests that an extensive preparatory phase which encourages detailed reporting of personal information (i.e., rapport building conversations) and involves practice recalling a recent neutral event (recall practice) may, in fact, have a counterproductive effect on the richness of children's accounts of the target event, perhaps by sapping their motivation, attention and/or cognitive capacities.

Accordingly, our goal was to explore the importance of both the style and content of the preparatory phase of the interview by

comparing the recall of children with whom (1) rapport was developed using open-ended invitations to talk about activities and interests, to those for whom (2) rapport building was complemented by practice in narrating a recent neutral (nontarget) event in response to open-ended invitations as recommended by the NICHD Protocol, and (3) rapport-building and practice questioning were accomplished using directive (recall) prompts and option-posing, yes/no (recognition) prompts (see Table 1). We expected that both the content (with/without the opportunity for practice) and style (open-ended invitations vs. directive prompts and closed questions) of the preparatory phase would be important in shaping children's responding when recounting the target event. We thus predicted that, when rapport building was conducted using prompts previously shown to elicit multiword responses and narratives and children practiced reporting a recent event using the same kinds of prompts before recalling the target event (*narrative rapport plus narrative recall practice*), children would report more information than interviewees who only experienced the same style of rapport building but no recall practice (*narrative rapport only*) or interviewees whose preparation was characterized by interviewer-led questioning using directive and yes/no questions which typically do not elicit narratives (*non-narrative rapport plus non-narrative recall practice*).

False Event Reporting

Finally, in real-world contexts, forensic interviewers may be required to interview children about allegations that are false, and they are unlikely to know whether this is the case. It is important that any technique developed to help children describe their experiences does not increase general talkativeness and the tendency to describe events that have not been experienced (Camparo et al., 2001). We thus sought to explore whether the NICHD Protocol led children to acquiesce to suggestions about nonexperienced events, and further, whether additional prompting led them to provide further information about the suggested events. The third aim of the study was therefore to determine whether children would report entirely false events when interviewed using the NICHD Protocol about an event that had not happened, and whether this was affected by preparatory style and content. We expected that, as in the only other study to examine false reporting with an evidence-based protocol (NET: Camparo et al., 2001), false reports would be rare and made no predictions about the effects of preparatory interview styles.

Table 1
Components and Style of the Preparatory Conditions

Condition	Style of questioning	Event recall practice
Narrative rapport only ($n = 24$)	Invitations, open-ended	No
Narrative rapport/recall practice ($n = 77$)	Invitations, open-ended	Yes
Non-narrative rapport/recall practice ($n = 27$)	Directive, option-posing (yes/no)	Yes

Method

Participants

Following approval from both the U.S. National Institutes of Health's Intramural Review Board and Lancaster University's research ethics committee, written consent was obtained from the parents of 171 children attending seven primary (i.e., elementary) schools in the northwest of England. The schools were selected so that participants came from a range of social backgrounds (data describing socioeconomic status and ethnicity of individual children were not collected). Of the children who participated in the event, 128 children (70 boys, 58 girls) were interviewed a month later and are included in the analyses reported below. Attrition occurred when 1) children could not be recontacted or failed to appear for interviews ($n = 26$), 2) refused to cooperate ($n = 7$), were unable to attend during the appropriate time period ($n = 1$), or denied the event had occurred ($n = 7$), 3) interviewer did not follow the experimental protocol ($n = 1$; recall practice was not conducted for a child in the non-narrative preparatory condition), or 4) the child spoke English as a second language ($n = 1$).

Children were quasi-randomly assigned to each condition, within each school, balancing for gender where possible while ensuring that all conditions were implemented at each school. Three times more children were assigned to the narrative rapport/recall preparatory condition than to the other two conditions, so that the effect of another manipulation related to an intervention introduced at the end of the interview (Brown, Lamb, Pipe, Orbach, & Lewis, 2007) could be examined. This manipulation could not affect the outcome of this part of the study and the results have been reported elsewhere.

The children were between the ages of five and seven years (mean age = 72 months, range 59–88 months, $SD = 7.2$). There were 24 children in the narrative rapport only condition (13 males, M age = 70.79, $SD = 7.28$ months), 77 children in the narrative rapport/recall practice condition (42 males, M age = 73.18, $SD = 7.13$ months), and 27 children in the non-narrative rapport/recall practice condition (15 males, M age = 71.00, $SD = 7.12$ months). A one-way ANOVA comparing the mean ages of the children showed no significant differences among the conditions, $F(2, 124) = 1.56, p > .05$.

Verbal assent was obtained from each child before each event or interview. Children received small novelty gifts as thanks for their participation.

Procedure

Target event. Children participated, individually, in a staged event at school that lasted approximately 15 minutes. A research assistant met the children in their classes and took them to “meet the photographer” (a second researcher). The photographer invited the children to look at a book about pirates before dressing them in a pirate costume (boots, shirt, vest, earring, eye-patch, hat, necktie, belt, sword) on top of their school clothes. Once the children were in costume, they sat on a small stepladder and were photographed. The photographer dressed in a cowboy costume (denim shirt, necktie, hat, belt with holsters and two toy guns) and two photographs were taken of the child with the photographer. A third research assistant then entered the room and briefly argued with

the photographer about access to some equipment before resolving the conflict and leaving with spare equipment. Once costumes had been removed, the children used the camera to take a picture of the photographer and then returned to class. The class teachers and children's parents were asked not to discuss the staged event with the children before the recall interview, although it was not possible to measure or control for whether children discussed the event among themselves.

Interview. Children were interviewed in a university research center about their recall of the event after a delay of between four and six weeks by one of four research assistants who had been trained to use the NICHD Investigative Interviewing Protocol. An ANOVA demonstrated no significant condition differences in the delays between the event and the interview, $F(2, 125) = .33, p > .05$ (M narrative rapport only = 37.54, $SD = 6.77$ days; M narrative rapport/recall practice = 39.08, $SD = 9.40$ days; M non-narrative rapport/recall practice = 38.04, $SD = 9.24$ days). All interviewers were postgraduate students in Psychology who had completed a 2-day training workshop in the use of the NICHD Protocol. The interviewers were blind to the hypotheses of the study, the details of the staged event, and to the false nature of the fire station visit. All interviews were monitored by the first author to ensure adherence to the Protocol, and regular training and feedback sessions were scheduled throughout the study. The first author was not blind to the study hypotheses, but endeavored to provide similar advice to interviewers about strategies that might elicit the most complete reports possible from the children.

Interviews included a preparatory phase before interview questioning that focused on the target and false events. The first part of the preparatory phase was the same for all children and involved establishing the ground rules for the interview (including the importance of telling the truth, not guessing, saying “I don't know” when necessary, and correcting the interviewer when s/he made a mistake). The second part comprised rapport-building with or without practice in event memory reporting. The type of questions (invitations and cued invitations vs. directive and option-posing/yes/no) used to establish rapport and for event recall practice varied across conditions (see Table 1). Rapport building conversations involved questions about children's families, things they liked to do, and their schools. In the two narrative rapport conditions conducted using open invitations, children were simply asked “tell me about . . .” In the rapport only condition, in which there was no subsequent event memory practice, interviewers were encouraged to take their time with this phase and encourage elaborative responses about the various topics using follow-up invitations (e.g., “tell me more about . . .”) to ensure that durations were of similar length in all conditions. In the non-narrative rapport condition, children were asked directive (‘wh-’) and yes/no questions about the same broad topics (e.g., “Do you have any brothers or sisters?”, “What are their names?”). Children in the two conditions who practiced recalling a recent past event were asked to tell the interviewer about their day from the time they woke up until the time they came to the interview. The style of questioning was consistent with that used during rapport building; children in the narrative practice condition were asked “tell me everything that happened today from the time you woke up until the time you came here to talk to me” with follow-up invitations (e.g., “tell me more about today”), and cued invitations (e.g., “you said you watched some TV, tell me all about that”), until their

recall was exhausted. The number of prompts used varied according to children's responsiveness. Children in the non-narrative recall practice condition were asked "I want to know more about things *you did today*, from the time you woke up, until the time you came here to see me," followed by a fixed number of scripted directive and yes/no questions about their morning and school activities (e.g., "What time did you wake up?", "What did you have for breakfast?", "Did you do reading at school today?").

Target event interview. Interviews about the target event began with a series of scripted prompts designed to orient the children to the photography session (see Table 2). Some children provided reports of events that were similar in theme to the target event (e.g., class or family photographs taken at school). In these cases, interviewers reiterated the prompt, emphasizing that they wanted to know about a different time when the children went to have their photographs taken on their own. If children denied that this occurred or responded that they could not remember, interviewers proceeded through the scripted prompts until the child was able to identify the event. Any children who denied the event ($n = 7$) after these prompts were excluded from the analyses. Once the children had identified the target event, interviewers followed the NICHD Investigative Interviewing Protocol to elicit detailed descriptions of the event. Interviewers used a variety of prompts (see Table 3) to encourage the children to provide detailed reports, with the number of these posed to any given child reflecting the flexible nature of the NICHD Protocol. Interviewers were encouraged to give priority to invitation and cued invitation prompts. Interviewers were trained to return to the most open style of prompting ("tell me more about that") after using a more focused prompt (such as a directive or an option-posing question).

During every interview, when children's recall appeared to be exhausted, the interviewer initiated a short break to consult the monitor to see whether any further questioning was needed. The monitor noted any information that was ambiguously or insufficiently described and advised the interviewer to ask follow up questions to encourage clarification or elaboration; she did not suggest questions focused on issues or details that had not been mentioned by the children. Her role, analogous to that of interview monitors in many investigative agencies, was to 1) ensure that the

interview protocol was followed and thus increase the consistency of interviewing across children, and 2) ensure that interviewers followed up on verbalizations that were unclear so as to elicit as much information as possible. Although the monitor was not blind to the hypotheses, she was instructed to focus on compliance with the NICHD Interview Protocol. Comparisons of the study interviews with those described in the results of published field studies indicated that the interviewers adhered to the Protocol at least as well as forensic interviewers in those studies with the exception of option-posing questions which interviewers never posed in the current study (see Table 3). Note, however, that the field studies included children of more diverse ages (3–13 years), with a much wider range of delays, and asked about more complex and extended events.

False event interview. Children were also asked to describe a fictitious event—a class trip to the fire station (participating schools confirmed that this or similar events had not actually occurred). The order in which children were asked about the target and fictitious events was randomly assigned within each interview condition. Approximately half of the children in each condition were first interviewed about the target event (n narrative rapport only = 13, n narrative rapport/recall practice = 38, n non-narrative rapport/recall practice = 13), whereas the remainder were asked first about the false event ($n = 11, 38, \text{ and } 14$, respectively). A two-way ANOVA with interview order and preparatory condition as between-participants factors revealed a significant difference in the age of the children as a function of interview order, $F(1, 121) = 7.86, p < .01, \eta_p^2 = .06$, with children asked about the false event first being somewhat older ($M = 74.16, SD = 6.98$ months) than children interviewed about the target event first ($M = 70.41, SD = 6.95$ months). There was no significant interaction between interview order and preparatory condition, $F(2, 121) = 2.77, p > .05$.

As with the target event, a series of increasingly detailed prompts was used to orient the children to the "event" if the most open invitation resulted in a denial (see Table 2). Any children mentioning or assenting to mention of a class trip to the fire station were interviewed about it in accordance with the NICHD Protocol to elicit further narrative detail from the child (i.e., a false report

Table 2
Scripted Prompts Used To Orient The Child To The Target and False Events

Target event	False event
1. I heard that a few weeks ago someone took you from your class on your own to have a picture taken. I wasn't there but I'd like to know all about what happened. Tell me everything you remember about having your picture taken. Try not to miss anything out. I want you to tell me as much as you can.	1. I heard that a few weeks ago you and your class took a trip to the fire station. I wasn't there but I'd like to know all about what happened. Tell me everything you remember about what happened when you went to the fire station. Try not to miss anything out. I want you to tell me as much as you can.
2. It's important for me to know all about what happened if you had your picture taken. Tell me all about that.	2. It's important for me to know all about what happened if you went to the fire station with your class. Tell me everything you remember about that.
3. Did someone take you from your class so you could have a picture taken?	3. Was there a class trip when you put on the fireman's uniform?
4. I heard that you went to (location of event) and had your picture taken. Tell me all about that.	
5. I heard that you had your picture taken in a costume. Tell me all about that.	
6. I heard that you got to wear a pirate's costume. Tell me all about that.	

Table 3
Comparison of Percentage of Prompt Types Comprising the Interviews in this Study to Published Field Study Data

Prompt type	This study	Orbach et al (2000): Israel	Sternberg et al (2001): USA	Lamb et al (2006): UK	Cyr et al (2006): Canada
Invitations	65	30	33	34	48
Directive	22	44	35	42	26
Option posing	0	18	26	18	19
Suggestive	13	8	6	6	7

consisted of more than mere assenting to the occurrence of a class trip). Some children provided reports of events that were similar in theme to the false event (e.g., a visit by some firemen or other emergency services personnel to their school, seeing a fire truck at a fair, or a class trip to another destination). In these cases (as with the target event), interviewers reiterated the prompt, emphasizing that they wanted to know about a different time when the children went with their class to the fire station. If children denied that this occurred or responded that they could not remember, interviewers terminated the interview or proceeded to ask about the target (real) event.

Coding

After interviews were transcribed, any unique information reported verbally or nonverbally (e.g., if children demonstrated how they posed for the photograph or pointed on their body) was coded. Interviewer prompts were coded using the NICHD Interview Coding Scheme employed in previous field studies (e.g., Orbach et al., 2000) to ensure consistency (see Table 4). The amount (number of new details), accuracy, and type of information provided by the children in response to each prompt were coded separately. Details included the identification and description of individuals, objects, events, or actions relevant to the photography event (e.g., “I was dressed as a pirate” was coded as three units of information: “I,”

“dressed,” “as a pirate”). Details were then categorized as correct, incorrect (i.e., errors of commission), subjective/ambiguous, or unverifiable. Subjective/ambiguous information referred to the children’s evaluative comments (e.g., “it was fun,” “it felt nice”) or descriptions that could not be coded for accuracy (e.g., “it went in a round thing”). Unverifiable information could not be checked (e.g., because it referred to something invisible or inaudible). Correct and incorrect details were further coded as central or peripheral details, following the definitions used in previous studies using the NICHD Protocol (Orbach & Lamb, 2000; Orbach & Lamb, 2001; Orbach, Lamb, LaRooy, & Pipe, 2012). Central details consisted of those describing aspects of the target event that were crucial insofar as their absence or modification would change the plot (e.g., actions, the items of the costume, location of event etc.). Peripheral details were those that were more descriptive and did not relate to an aspect of the event integral to the plot (e.g., the color or pattern of costume items, descriptions of the room), although they were still related to the event and forensically relevant. Accuracy of information was determined by consulting the event script, notes taken at the time of the event by the second research assistant who noted any deviations or additional information that might be relevant, and by viewing the video record of the actual event.

Coding of interviewer prompts and identification of details was completed by a team of highly trained research assistants who were unfamiliar with the goals of the study. Two coders independently coded 20% of the transcripts to ensure that reliability was maintained. Reliability for interviewer prompt types was assessed using Cohen’s Kappa (Cohen, Cohen, West, & Aiken, 2003); the overall Kappa was .96 and across prompt types ranged from .89 to .97. The proportion of agreement regarding identification of details ranged from .90 to .95. All disagreements were discussed with an additional trained coder until consensus was reached. The accuracy and the content (central vs. peripheral detail) of children’s statements were assessed by two different coders; 20% of the transcripts were coded by both and differences were resolved by

Table 4
Coding Definitions for Interviewer Utterances

Utterance type	Definition	Example
Invitations	Open-ended requests for free-recall reports or elaborations that do not focus the child on a particular type of information. Elicit narrative (multi-word) responses.	Tell me everything that happened. And then what happened? Tell me more.
Cued invitations	Open-ended requests for additional free-recall elaboration on child’s disclosed contents, or on temporally defined periods, based on disclosed action(s). Elicit narrative (multi-word) responses.	You said you wore a costume. Tell me more about that. What happened from the time you took the photograph until you went back to class? (both actions mentioned by the child)
Directive	Open-ended requests for further details on aspects of previously reported information, formulated as ‘wh’ question. Elicit single word or phrase-based responses.	What color was the sword? (when sword has been mentioned by the child)
Option-posing	Introduce interviewer-generated input, asking the child to affirm, negate, or select interviewer-given exhaustive options, formulated as yes/no or forced-choice questions, thus tapping recognition memory processes.	Did he say anything to you when he was doing that? Did he touch you over or under the clothes? (when the child mentioned being touched)
Suggestive	Prompts stated in a way that communicates response expected, or assume details not reported by child. Formulation may vary (e.g. like invitation, cued invitation, directive, or option-posing questions) and thus volume of response may also vary.	What other things did you wear? Tell me about the lady that came in (when a lady coming in has not been mentioned by the child). What color was the sword? (when sword has <i>not</i> been mentioned by the child).

discussion. These coders were not blind to the study hypotheses but they were blind to the preparatory condition the children were in because they only examined the target event interview section of the transcripts. Reliability coding the accuracy of children's responses ($\kappa = 0.81$), and for type of content ($\kappa = .79$) was high.

Results

The analyses focused on 1) the amount and accuracy of information elicited by various types of prompts and whether it was central or peripheral to the event, and 2) whether the preparatory condition and the order in which children were asked about the target and false events influenced the information reported. For all of these analyses a 3 (*preparatory condition*) \times 2 (*event order*) \times 4 (*prompt type*) repeated measures ANOVA was conducted, with prompt type as a within-participant factor. Option-posing prompts were never used in the target interview and were not included in the analyses. When ANOVA data are reported, the multivariate F tests, where appropriate, were also significant. Where the reported degrees of freedom for the nominator included decimal points, this indicated that the Greenhouse-Geisser adjustment was made to compensate for unequal variances between cells. When proportional scores were used (i.e., when assessing accuracy) arcsine transformations were performed before the analyses were conducted (Winer, 1971), although raw means are presented. All pairwise comparisons involved Bonferroni corrections. Effect sizes are indicated by partial eta squared (η_p^2).

We also examined whether the preparatory condition or the order in which children were interviewed influenced the likelihood that the children would report information about the false event.

Preliminary Analyses

Two one-way ANOVA tests were conducted first as a check on whether the manipulations affected the duration of the preparatory phase and target event interviews, respectively. As expected, the duration of the preparatory phase did not differ by condition, $F(2, 122) = .46$; (M rapport only = 9.97 minutes, $SD = 3.66$; M narrative rapport/recall practice = 10.62 minutes, $SD = 2.99$; M non-narrative rapport/recall practice = 9.94 minutes, $SD = 3.60$). However, the duration of the interview about the staged event differed significantly by preparatory condition, $F(2, 120) = 11.15$, $p < .0001$, $\eta_p^2 = .16$. Tukey (Tukey-Kramer) tests showed that children in the narrative rapport/recall practice condition took significantly less time ($M = 15.23$ minutes, $SD = 4.59$) to describe their experiences than children in the rapport only condition ($M = 21.52$ minutes, $SD = 7.63$; $p < .001$), and children in the non-narrative rapport/recall practice condition ($M = 17.54$ minutes, $SD = 6.33$, $p = .04$), who did not differ from each other.

Preliminary analyses revealed significant relationships between age and the number of invitations, $r = -.33$, and directive prompts, $r = .28$ (all $ps < .01$) but not the number of cued-invitations and suggestive prompts. Given the relatively low strength of these correlations, age was not included as a covariate in subsequent analyses.

How Were the Interviews Constructed?

First we examined how many questions overall and then of each prompt type the children in each preparatory condition were asked

(and therefore practiced responding to) in the preparatory phase of the interview (see Table 5). A one-way ANOVA examining total number of questions posed during the preparatory phase revealed a significant effect of condition, $F(2, 125) = 96.03$, $p < .001$, $\eta_p^2 = .61$. Tukey's tests indicated that children in the non-narrative rapport/recall practice condition were asked more questions overall than those in the other two conditions (both $p < .001$), who did not differ. We next examined the number of each type of prompt posed in the preparatory phase. A repeated measures ANOVA with prompt type as the within participant factor and preparatory condition as the between participant factor revealed a significant main effect of prompt type, $F(2.04, 255.35) = 98.02$, $p < .001$, $\eta_p^2 = .44$, a significant main effect of preparatory condition, $F(2, 125) = 95.64$, $p < .001$, $\eta_p^2 = .61$, and a significant interaction between the two, $F(4.09, 255.35) = 375.39$, $p < .001$, $\eta_p^2 = .86$. To examine the interaction, a series of univariate ANOVAs on the number of each type of prompt posed was conducted separately for each condition. These revealed a significant main effect of preparatory condition for each of the prompts (Invitations: $F(2, 125) = 45.39$, $p < .001$, $\eta_p^2 = .42$; Cued invitations: $F(2, 125) = 30.10$, $p < .001$, $\eta_p^2 = .33$; Directive prompts: $F(2, 125) = 1093.77$, $p < .001$, $\eta_p^2 = .95$, Option posing prompts: $F(2, 125) = 889.12$, $p < .001$, $\eta_p^2 = .93$). Tukey's tests to unpack the effect of condition for each prompt revealed differences that reflected the design of each preparatory condition: interviewers posed more invitations and cued invitations and fewer directive and option posing prompts to children in the two narrative conditions (rapport only or with recall practice) than to those in the non-narrative rapport/practice condition. These analyses thus confirmed that the conditions differed as planned.

We also examined the number of questions posed after the monitor took a break, as a proportion of total questions posed throughout entire interview. The proportion of questions posed after the monitors break did not vary according to condition, $F(2, 123) = 2.86$, $p = .061$, $\eta_p^2 = .04$, M (narrative rapport only = .27, $SD = .15$), M (narrative rapport/recall = .19, $SD = .15$), M (non-narrative rapport/recall = .25, $SD = .20$).

We next examined condition differences in the overall number of prompts posed, and in the numbers of each type posed, during the target event interview (see Table 6 for means). A one-way ANOVA did not reveal any significant differences in the total number of prompts posed to children across the three preparatory conditions, $F(2, 125) = .97$. However, there was a significant main effect for prompt type, $F(1.93, 235.67) = 121.61$, $p < .001$, $\eta_p^2 = .50$, and a significant interaction between prompt type and condi-

Table 5
Mean (SD) Number of Prompts Posed During the Preparatory Phase of the Interview

Prompt type	Preparatory condition		
	Narrative rapport only	Narrative rapport/recall practice	Non-narrative rapport/recall practice
Invitations	4.88 (.64)	6.42 (3.55)	.04 (.19)
Cued invitations	5.00 (3.40)	7.43 (5.12)	.07 (.27)
Directive	1.21 (1.62)	1.31 (1.75)	24.74 (3.81)
Option posing	.13 (.34)	.26 (.62)	12.89 (2.83)
Total	11.21 (6.76)	15.43 (8.79)	37.78 (5.73)

Table 6
Mean (SD) Number of Prompts Asked During the Target Interview

Prompt type	Preparatory condition		
	Narrative rapport only	Narrative rapport/recall practice	Non-narrative rapport/recall practice
Invitations	9.00 (3.06)	7.25 (4.77)	10.04 (6.74)
Cued invitations	24.08 (9.18)	15.10 (6.21)	20.78 (11.79)
Directive	4.71 (5.10)	11.06 (6.04)	4.96 (4.74)
Suggestive	4.58 (3.49)	5.56 (3.55)	4.15 (3.22)
Total	42.38 (8.92)	38.97 (10.25)	39.93 (12.20)

tion, $F(3.86, 235.67) = 13.85, p < .001, \eta_p^2 = .19$, but no significant main effects for condition, order, or interactions. Pairwise comparisons to unpack the effect of prompt type showed that cued invitations were posed more frequently than all other prompt types and that invitations and directive prompts were posed more frequently than suggestive prompts, though the numbers of invitations and directives did not differ significantly. To examine the prompt type \times preparatory condition interaction, pairwise comparisons of the numbers of prompts were conducted separately for each condition. In both the narrative rapport only and the non-narrative rapport/recall practice conditions, more cued invitations were posed than any other prompt, and more invitations were posed than directive and suggestive prompts, which did not differ. In the narrative rapport/recall practice condition, cued invitations were posed most frequently, directive prompts were more frequent than invitations and suggestive prompts, and more invitations were posed than suggestive prompts. Overall, cued invitations were always the most frequent and suggestive the least frequent prompt types, and the interviewers appeared to be implementing the NICHD Protocol strategy consistently, regardless of condition.

How Much Information Did Each Type of Prompt Elicit?

We first examined the overall amount of information reported by children. A two-way ANOVA with preparatory condition and order as between participant factors indicated no significant difference by condition, $F(1, 122) = .89$, or order, $F(1, 122) = .09$, and no significant interaction, $F(2, 122) = .34$. To assess the relative volume of information reported in response to each type of prompt, we divided the total amount of information (regardless of accuracy) reported in response to prompts of each type by the number of those prompts asked (e.g., total details reported in response to invitations/total number of invitations asked; total details reported in response to cued invitations/total number of cued invitations asked, and so forth), and means are presented in Table 7. There was a significant main effect for prompt type ($F(1.81, 184.07) = 10.97, p < .001, \eta_p^2 = .10$), a significant main effect for preparatory condition ($F(2, 102) = 3.68, p < .05, \eta_p^2 = .07$), but no significant effect of order, and no significant interactions. Pairwise comparisons to unpack the effect of prompt showed that cued invitations elicited as many details per prompt as open invitations and more details per prompt than both directive and suggestive prompts, while open invitations and directive prompts elicited more information per prompt than suggestive prompts and

did not differ from each other. Pairwise comparisons to examine the effect of preparatory condition demonstrated that children in the narrative rapport/recall practice condition reported more details per prompt overall than children in the narrative rapport only condition, while children in the non-narrative rapport/recall practice condition did not differ from either.

How Accurate Was the Information Elicited Using Each Type of Prompt?

We next assessed the accuracy of the information reported in response to each type of prompt (see Table 8). Children’s accuracy in response to the various prompts was generally high across conditions, although it ranged from .59 – .95. There was a significant main effect for prompt type, $F(2.27, 215.64) = 4.39, p = .01, \eta_p^2 = .04$, and a significant interaction between prompt and event order, $F(3, 93) = 3.26, p < .05, \eta_p^2 = .10$, which was not significant in the subsequent ANOVA when the Greenhouse-Geisser adjustment was used, $F(2.27, 215.64) = 2.22$. Pairwise comparisons were conducted to examine the main effect of prompt. These showed that information reported in response to invitations was more accurate than that reported in response to any other prompt type, and that suggestive prompts elicited more accurate information than cued invitations. There was no significant main effect for condition, $F(2, 95) = .07$, but there was a significant main effect for order, $F(1, 95) = 6.80, p = .01, \eta_p^2 = .07$. Children interviewed about the staged event first were more accurate ($M = .85, SD = .17$) than children interviewed about the false event first ($M = .77, SD = .18$) and there was a significant order \times preparatory condition interaction, $F(2, 95) = 5.41, p < .01, \eta_p^2 = .10$. To unpack this interaction, simple effects analyses were conducted separately for each condition, with interview order as a between-subjects factor. These showed a significant main effect for order when children were prepared with non-narrative rapport/recall practice, $F(1, 17) = 6.34, p < .05, \eta_p^2 = .27$: Children were more accurate overall when interviewed first about the staged event ($M = .88, SD = .18$) rather than the false event ($M = .70, SD = .18$). The order effect was not significant in the other two conditions.

What Kind of Information Was Elicited?

To examine the effectiveness of different prompts in eliciting central versus peripheral information, we first examined the amount of correct and incorrect central and peripheral details reported by children (see Table 9 for means). We adopted this

Table 7
Mean Number of Details Elicited per Prompt Asked (SD) During the Target Interview

Prompt type	Preparatory condition		
	Narrative rapport only	Narrative rapport/recall practice	Non-narrative rapport/recall practice
Invitations	2.46 (2.24)	5.98 (6.40)	4.15 (3.04)
Cued invitations	3.78 (2.21)	5.55 (3.16)	5.02 (3.17)
Directive	2.60 (2.20)	4.27 (2.44)	3.42 (2.54)
Suggestive	2.10 (2.27)	2.27 (1.58)	2.04 (1.54)

Table 8
Proportion (SD) of Reported Information That Was Correct (Accuracy) by Prompt Type, Preparatory Condition, and Order of Interview

Prompt type	Preparatory condition							
	Narrative rapport only		Narrative rapport/ recall practice		Non-narrative rapport/ recall practice		Total	
	Staged first	False first	Staged first	False first	Staged first	False first	Staged first	False first
Invitations	.81 (.29)	.89 (.21)	.89 (.15)	.89 (.14)	.95 (.09)	.79 (.34)	.89 (.16)	.87 (.19)
Cued invitations	.89 (.08)	.74 (.10)	.79 (.18)	.84 (.16)	.88 (.12)	.74 (.22)	.82 (.17)	.81 (.17)
Directive	.86 (.29)	.75 (.16)	.82 (.19)	.79 (.20)	.93 (.10)	.59 (.27)	.85 (.19)	.75 (.22)
Suggestive	.90 (.16)	.72 (.30)	.76 (.28)	.85 (.19)	.78 (.31)	.69 (.37)	.78 (.27)	.81 (.25)

approach, rather than examining the total amount and accuracy (as above), because repeated measures analyses of accuracy resulted in a large number of children being dropped from the analyses when, for example, they reported no peripheral details.

For correct central details, there was a significant main effect of prompt type, $F(1.76, 219.57) = 123.66, p < .001, \eta_p^2 = .50$, and a significant prompt type x preparatory condition interaction, $F(3.51, 219.57) = 5.18, p < .01, \eta_p^2 = .08$, but no significant main effect of preparatory condition, $F(2, 125) = 1.06$. Pairwise comparisons to unpack the effect of prompt type showed that more central details were reported in response to cued invitations than to

any other prompt, similar amounts of these details were elicited using invitations and directive prompts, and the fewest were reported in response to suggestive prompts. To examine the prompt by preparatory condition interaction, pairwise comparisons between each prompt were repeated separately for each condition. Across all conditions, the effect of cued invitations remained (i.e., more central details were reported in response to these than to any other prompt). In the narrative rapport only condition, more details were reported in response to invitations and directive prompts than to suggestive prompts. In the narrative rapport/recall practice and the non-narrative rapport/recall prac-

Table 9
Mean (SD) Number of Correct and Incorrect Central and Peripheral Details Reported by Children to Each Prompt Type, by Preparatory Condition

Prompt type	Preparatory condition		
	Narrative rapport only	Narrative rapport/ recall practice	Non-narrative rapport/ recall practice
Correct central details			
Invitations	16.96 (17.10)	19.34 (11.08)	20.78 (14.27)
Cued Invitations	58.71 (34.09)	44.81 (27.55)	47.22 (25.95)
Directives	9.29 (13.25)	23.66 (16.00)	10.11 (13.08)
Suggestive	5.08 (9.49)	8.34 (9.01)	5.19 (8.15)
Correct peripheral details			
Invitations	2.42 (3.45)	3.77 (6.37)	2.74 (5.25)
Cued Invitations	25.04 (26.91)	16.66 (16.75)	20.07 (16.09)
Directives	2.71 (5.09)	9.19 (9.92)	4.33 (6.73)
Suggestive	1.29 (2.60)	1.12 (2.64)	1.59 (4.13)
Incorrect central details			
Invitations	1.38 (2.90)	2.61 (6.77)	3.11 (8.39)
Cued invitations	9.54 (10.39)	9.42 (14.42)	9.26 (8.48)
Directives	2.92 (7.58)	5.47 (6.51)	2.00 (3.70)
Suggestive	1.25 (3.19)	1.57 (2.29)	2.30 (8.49)
Incorrect peripheral details			
Invitations	.71 (2.90)	.79 (3.50)	.78 (2.33)
Cued Invitations	8.21 (13.94)	5.26 (9.48)	11.52 (17.25)
Directives	3.13 (7.07)	3.45 (7.64)	2.41 (3.70)
Suggestive	.29 (1.08)	.29 (.92)	.04 (.19)
Accuracy of central details			
Invitations	.94 (.12)	.91 (.13)	.91 (.20)
Cued Invitations	.88 (.10)	.84 (.18)	.82 (.20)
Directives	.86 (.17)	.81 (.20)	.82 (.26)
Suggestive	.85 (.28)	.82 (.23)	.84 (.30)
Accuracy of peripheral details			
Invitations	.88 (.31)	.91 (.20)	.78 (.38)
Cued invitations	.80 (.18)	.76 (.27)	.69 (.26)
Directives	.62 (.42)	.76 (.30)	.64 (.35)
Suggestive	.83 (.36)	.81 (.35)	.88 (.36)

tice conditions, more details were reported in response to invitations than to directives, though both elicited more details than suggestive prompts.

Next we examined the numbers of correct peripheral details reported by children (see Table 9). A significant main effect of prompt, $F(1.56, 195.37) = 68.08, p < .001, \eta_p^2 = .35$, and a significant prompt type x preparatory condition interaction, $F(3.13, 195.37) = 3.48, p < .05, \eta_p^2 = .05$, were evident. No significant main effect of preparatory condition was observed, $F(2, 125) = .10$. Pairwise comparisons to unpack the effect of prompt showed that more peripheral details were reported in response to cued invitations than any other prompt, more were reported in response to directive prompts than to invitations, and the fewest were elicited by suggestive prompts. To examine the prompt by preparatory condition interaction, pairwise comparisons between each prompt were repeated separately for each condition. Across all conditions, the effect of cued invitations remained (i.e., more descriptive details were reported in response to these than in response to any other type of prompt). In the narrative rapport condition, no significant differences emerged in the numbers of descriptive details elicited using invitations, directive, or suggestive prompts. In the narrative rapport/recall practice condition, more details were reported in response to directive prompts than to invitations and the fewest details were elicited by suggestive prompts. In the non-narrative rapport/recall practice condition, more details were elicited using directive than suggestive prompts.

We also examined incorrect central details reported (see Table 9). A significant main effect of prompt was observed, $F(1.73, 216.22) = 26.20, p < .001, \eta_p^2 = .17$, but there was no significant effect of preparatory condition, $F(2, 125) = .34$ and no significant interaction, $F(3.46, 216.22) = .96$. Pairwise comparisons to examine the main effect of prompt showed that more erroneous central details were reported in response to cued invitations than any other type of prompt, in response to invitations than to directive prompts, and in response to directive rather than suggestive prompts.

Finally, we examined incorrect peripheral details reported (see Table 9). A significant main effect of prompt type, $F(1.58, 197.70) = 32.94, p < .001, \eta_p^2 = .21$, and a significant prompt type x preparatory condition interaction, $F(3.16, 224.65) = 2.89, p < .05, \eta_p^2 = .04$, was evident. There was no significant main effect of preparatory condition, $F(2, 125) = .74$. Pairwise comparisons to examine the main effect of prompt type showed that more errors were reported about peripheral details in response to cued invitations than to any other prompts, in response to directive prompts than to invitations and suggestive prompts, and in response to invitations than to suggestive prompts. To examine the prompt by preparatory condition interaction, the analysis was repeated separately for each condition. In the two recall-practice conditions, the effect of cued invitations remained (i.e., more peripheral errors were reported in response to these). In the rapport (only) condition, the difference between cued invitations and suggestive prompts was not significant, and no significant differences emerged in the number of erroneous peripheral details reported in response to invitations, directive or suggestive prompts. In both recall-practice conditions, more erroneous peripheral details were elicited by directive prompts than by invitations and suggestive prompts, which elicited similar numbers.

Although relative measures of accuracy were not subjected to analysis as noted above, the proportion of details correctly reported are also shown in Table 9 and show that, for central details, increases in errors were accompanied by increases in accurate reporting of central details, with overall accuracy remaining high across prompt types. For peripheral details, however, relative accuracy was generally reduced when more focused prompts were used.

Was Questioning Children About a False Event Associated With Erroneous Reporting About the Staged Event?

Fourteen children (10.9%) reported that the trip to the fire station had taken place. Such reports were unrelated to condition, $\chi^2(1) = 2.35, NS$, and order of interview, $\chi^2(1) = 2.68, NS$. There was no difference between the mean ages of children who denied that the false event occurred (72.25 months, $SD = 7.23$) and those who reported that it had occurred (72.43 months, $SD = 7.14$), $F(1, 125) = .008, ns$. Children who made a false event report were significantly less accurate ($M = .71, SD = .22$) when recounting the staged event than those who did not make such a report ($M = .84, SD = .11$), $F(1, 101) = 16.90, p < .0001, \eta_p^2 = .28$.

Discussion

An important goal of our study was to extend previous evaluations of the NICHD Protocol by examining the effectiveness of the different recommended prompts when an objective record of the target event was available and accuracy could be determined. As with other protocols, and in line with many professional guidelines, the NICHD Protocol places particular emphasis on child-directed interviewing and on limiting the extent to which interviewers influence children's responses. It guides interviewers to make extensive use of open recall-based prompts, such as invitations, to obtain uncontaminated information in the children's own words. Our study demonstrated the particular effectiveness of these prompts. Such prompts invite narrative, multiword rather than brief responses and, as we demonstrated, elicit more details per prompt in comparison with the more focused prompts, such as directive questions, that are commonly recommended in interviewing guidelines as well. Moreover, the results reported above show that the Protocol effectively promotes *accurate* responding to a range of question types.

Unique to the NICHD Protocol is the extensive use and particular emphasis on *cued invitations* which are follow-up open invitations based on information the child has already provided. These are a primary means of maintaining a child-directed interviewing style and of limiting the extent to which interviewers influence children's responses while prompting further detail and elaboration. Ours was the first analogue study to examine the effectiveness of this particular cuing strategy whose usefulness has been demonstrated in numerous field studies. In the present study, cued invitations were very effective in eliciting further information not elicited using other types of prompts, including invitations.

In general, children's reports largely comprised core or central details about their experiences, and cued invitations were particularly effective in eliciting such information. That is, the additional information elicited using such prompts was highly relevant. Al-

though fewer peripheral than central details were reported, they were also more frequently included in children's responses to cued invitations. However, cued invitations also elicited more errors, about both central and peripheral details, than other prompt types. Although the relative accuracy of the information remained high for information that was central to the event, peripheral details elicited using the cued invitations were less accurate. Thus it is important for interviewers to bear in mind that, although such prompts tend to elicit highly relevant details from children, they may also lead children to include some incorrect information in those detailed responses. As with any prompt, repetition or pressure to respond when recall has been exhausted may lead to the inclusion of some details about which children are less sure. Those details considered "peripheral" in the present study mostly referred to descriptive details about the costume, and of course such details may be extremely important in some circumstances (e.g., where the description of clothing is critical to identification of a suspect).

To date, the research in support of the NICHD Protocol has been drawn predominantly from field studies, limiting the conclusions that could be drawn about the accuracy of the information children reported. The current data therefore provide a much-needed complement to studies of forensic interview transcripts. The results reported above show that the NICHD Protocol recommendations effectively promote accurate responding to a range of question types, particularly information central to what has taken place. Interestingly, children's overall accuracy remained high even when the interviewers used question types that were not recommended, most notably suggestive questions. At first glance this finding seems surprising given the many studies that have shown that suggestive questions sometimes seriously degrade the accuracy of information elicited (e.g., Bruck, Ceci, Francoeur, & Renick, 1995; Dent, 1986; Hutcheson, Baxter, Telfer, & Warden, 1995; Ornstein, Gordon, & Larus, 1992; Poole & Lindsay, 1998). This finding must, however, be placed in context. In particular, it is likely that the impressive accuracy in response to these prompts compared to that often observed in other studies reflects the highly conservative coding conventions adopted here. Most of the questions coded as suggestive in this study reflected the interviewers' growing awareness of the target event and thus involved prompting children for further event details they had not yet reported but had been reported by other children. Such questions would probably not be considered suggestive in forensic contexts and in any event tended to be leading, rather than misleading, because they built on expectations on the part of interviewers created by other interviewees. For example, questions related to additional items of the costume (e.g., "Okay, so you told me about when you dressed as a pirate, in the pirate costume, and you told me about some of the things. *Now what other things did the costume have?*"). They would almost certainly not have been coded as suggestive in laboratory studies but rather as cued recall or directive questions. Highly suggestive and misleading (inaccurate) questions, such as tag questions (e.g., "She took four pictures of you, didn't she?") were never used in the present study. Our interviewers also adhered to the principle of "pairing" promoted by the NICHD Protocol: When a more focused question was posed (to clarify information, or because of interviewer error) interviewers followed this with a narrative-eliciting prompt (an invitation or cued invitation to encourage further elaboration). In this way, they avoided the

cascading effect of posing increasing numbers of risky questions that may have had a broader effect on accuracy.

It is also possible that the preparatory and NICHD Protocol interview strategies encouraged the children to feel confident and thus improved the quality of information reported even when more focused and potentially risky questions were posed. Whether children would be as accurate when these same question types were posed in a less child-oriented interview remains to be determined. Suggestive questions often elicit less accurate information, but our findings suggest that this effect can be muted in some circumstances.

That all prompts elicited mostly accurate information, certainly with respect to information central to what had taken place, is noteworthy from an applied perspective. Unfortunately, field research indicates that, even when the NICHD Protocol is used, suggestive questions (coded as in the present study) often make up 8% to 10% of the questions interviewers ask in the substantive portion of their interviews (Hershkowitz, 1999; Lamb et al., 2009; Orbach et al., 2000; Sternberg et al., 2001), and the rates in our study were similar. When mildly leading suggestive questions are interspersed with narrative-eliciting prompts in the context of a child-centered interview that encourages narrative reporting, however, the typically detrimental effects on accuracy appear to be minimized. It is also important to acknowledge that, while professional guidelines and specific protocols encourage the extensive use of open invitational prompts, there are times when more specific questioning is required (e.g., to elicit forensically important information that the child has not spontaneously reported, to clarify ambiguous reports, or when children have made limited or no response to open invitations) (Hershkowitz et al., 2012). Importantly, although the more specific prompts elicited less detailed reports from children in our study, that information was just as likely to be accurate, although, of course, no responses to option-posing questions could be evaluated in the present study (see below). Nevertheless, in the absence of evidence to suggest that such caution is not warranted, we strongly recommend that more focused closed prompts should be used *strategically*, when forensically important information has not been forthcoming in response to previous, more open ended prompting, rather than as a blanket substitute for narrative-eliciting prompts.

Moreover, as noted below, we also found that children prepared for the interview using directive prompting who were first interviewed about a true event described it more accurately than those who were first interviewed about an event that had not occurred. Forensic interviewers seldom know with any certainty whether they are asking children to recount experiences that actually happened, so the way in which children are prepared for the interview is important. Appropriate preparation may mitigate the negative influence of being asked about something that did not happen before being asked about real experiences.

This study also examined the contribution of the style and content of the preparatory phase of the interview on children's responsiveness when questioned about a target event and the likelihood that they would describe an event that never happened. Interestingly, variations in the way the children were prepared did not lead to differences in the duration of the preparatory phase even though one condition did not include the opportunity for recall practice. In that condition, interviewers appeared to ensure that they spent long enough interacting with the children before

beginning the target interview using a style of the questioning designed to elicit narrative accounts. Additionally, open invitations are likely to elicit much longer and detailed responses from children (e.g., Orbach et al., 2000; Peterson et al., 2013) than the brief responses likely to be elicited using directive prompts. The similar numbers of prompts posed in the two narrative preparation conditions also suggest that, when interviewers also needed to engage children in event recall practice, they limited the number of questions posed in the rapport-building phase to avoid exhausting the children.

Unlike previous studies (e.g., Bowen & Howie, 2002; Brown et al., 2003a, 2003b; Roberts et al., 2004; Peterson et al., 2013; Sternberg et al., 1997; Saywitz & Snyder, 1993, 1996), the opportunity to practice reporting an event before describing the target experience did not lead children to provide more detailed accounts of the target event than a more limited opportunity to practice responding to directive and yes/no questions about themselves and their families. This might reflect the different interview protocols or strategies used in different studies. However, we did find that practice designed to elicit a narrative style of responding about a recent event (compared to rapport building alone or a non-narrative style of rapport and recall practice) led to more detailed responses to the kinds of questions most strongly recommended, namely invitations and cued invitations. Children who practiced recalling a past event in response to more focused prompting (directive and yes/no questions) showed no such advantage. These children were also less accurate when asked about a false event first.

Proponents of event recall practice (Brubacher et al., 2011; Lamb & Brown, 2006; Roberts et al., 2011; Roberts et al., 2004; Saywitz & Snyder, 1993, 1996; Sternberg et al., 1997) suggest that it serves multiple purposes: it provides children with practice recalling and reporting past events about which they are the sole sources of knowledge (i.e., it emphasizes their role as experts), provides exposure to and practice responding to the narrative-eliciting prompts that are less commonly used in everyday adult-child interactions, and it allows reinforcement of elaborative responding (i.e., “trains” children in the style of detailed reporting sought by forensic interviewers). Our results support these conclusions: Those children who were specifically trained to recall a specific event using invitational prompting provided more detailed information in response to similar prompting about the target event than those not prepared in this way.

It also appears that the investment in providing this preparation paid off in other ways: Children who experienced the narrative style of rapport and recall practice completed the remainder of the interview in less time than children who had not been engaged in recall practice, without any detrimental effect on the amount of information they reported. Put another way, these children described their experience more efficiently when prepared well beforehand. Other work has shown that preparation can affect not just the amount of information reported, but also the coherence of children’s free recall (Peterson et al., 2013). Indeed, in contrast to some reports (e.g., Davies et al., 2000; Hershkowitz, 2009; Teoh & Lamb, 2010), and consistent with other studies examining how to prepare children for their task as witnesses (e.g., Bowen & Howie, 2002; Brown et al., 2003a, 2003b; Camparo et al., 2001; Peterson et al., 2013; Saywitz & Snyder, 1993, 1996), we did not observe any detrimental effects of preparatory practices on children’s re-

sponsiveness. The various preparatory conditions in our study were all of similar length (exceeding the 8 minutes that appeared to be optimal in Davies et al.’s study). These findings thus complement a body of evidence showing that young witnesses benefit from practice recalling experienced events.

Some components of the preparatory phase were more important than others, however. For example, practice in event recall was most effective when administered using the most open-ended invitational style of questioning designed to elicit narrative accounts, whereas the use of this style of questioning for rapport building alone did not lead to improved reporting. Of course there are many other factors, in addition to preparatory and interviewing approaches, which may influence how children behave when interviewed. Children’s recall will likely reflect a complex interaction among individual differences, the nature of the event, and how and when they are interviewed (see Brown, Lamb, Pipe, & Orbach, 2008, for a review). Furthermore, the way in which children respond to interviewers’ questions may influence the interviewers’ subsequent selection of questions, and children’s responses to them (e.g., Gilstrap & Ceci, 2005). In the present study, children who were exposed to both narrative-oriented rapport building and practice in reporting event narratives provided significantly more information in response to open-ended prompts in the target interview than did children not receiving this style of preparation. That their interviews were shorter, yet no less productive, possibly reflects this feedback loop, with children’s responsiveness affecting the interviewer’s subsequent strategies.

Unfortunately, interviewers in the present study were too well trained: Although they used option-posing questions in the preparatory phase, none of the interviewers posed option-posing questions when questioning about the target event. Thus, we cannot draw any conclusions about children’s accuracy in relation to these types of prompts. When prepared following the NICHD recommendations (narrative rapport and practice) and when recalling central information, children were generally accurate when asked directive and even suggestive questions. In future analogue studies, it would be useful to, for example, provide interviewers with a list of details about which they should probe further if children did not report them in response to invitations. This may increase the likelihood that interviewers will employ option-posing prompts and thus provide an opportunity to examine their effects on children’s accuracy when they are used in a naturalistic (rather than scripted) way. Such questioning might be analogous to the circumstances in which forensic interviewers use such prompts in the field to seek clarity or elicit information that has not been provided in response to other question types.

Another limitation of the present study concerns the monitor, who observed the interview (as recommended in many interview protocols, including the NICHD Protocol) to check that the interviewer appropriately followed up on details mentioned by the child. When the interviewer failed to do so, the monitor suggested follow up questions during a scheduled break in the interview. Even though the monitor was trained not to go beyond the information provided by the child, she was aware of our hypotheses. An analysis of the number of questions posed following the break showed no difference across conditions; nonetheless, it is possible that the monitor’s knowledge had subtle effects on the course of the interview after the break. Further research with a monitor who is unaware of the researchers’ hypotheses would be ideal to control

for such influences. Similarly, although interviewers were blind to details of both the true and false events at the outset of the study (apart from those within the eliciting prompts), their knowledge of and hypotheses about the events would have increased as the study progressed. Controlling for such an effect would require a very large number of interviewers and/or different analogue events. Note, however, that interviewers in the field may also sometimes interview several children about the same alleged incident or series of incidents, and similarly develop expectations of what children are likely to report. It must also be acknowledged that, because the interviewers were familiar with the NICHD Protocol, though not with the experimental hypotheses, it is possible that their background knowledge may have biased them to expect better performance by children trained in the style recommended by the Protocol. Similarly, the familiarity of some coders with the experimental hypotheses may have biased their coding, though the very high levels of interrater reliability and the strict coding conventions used make this unlikely.

Of some concern was the small but alarming number of children who provided accounts of an entirely false event. This was not influenced by how they were prepared for the interview, nor the order in which they were interviewed. Examination of these children's reports about the true event showed that they were less accurate than children who had not assented to the suggested event, even when they were asked *first* about the real event, suggesting a general tendency toward inaccuracy in these children. Other studies of false reporting have also identified a small proportion of children providing entirely false accounts (e.g., Camparo et al., 2001). Our findings underscore the need for caution when interviewing young children: Even when they are interviewed using an interviewing approach derived from a substantial research base and consistent with best practice guidelines, some children may provide fabricated accounts or misunderstand the focus of the interview (e.g., see the interview as a creative game rather than an exercise in information gathering about experienced events, Kulkofsky, Wang, & Ceci, 2008). Thus, while eliciting impressively detailed and highly accurate accounts from children about their experiences, the NICHD Protocol is not a panacea for the myriad challenges that children and interviewers bring to the forensic interview context; some children remain reluctant to disclose, others may provide false accounts, and interviewers often use risky questions. Nevertheless, the current data show that use of the Protocol helps interviewers conduct high quality interviews that help children provide rich narrative descriptions of their experiences without compromising the accuracy of their accounts. Given the complexity of the task forensic interviewers face when working to elicit complete and accurate accounts from children, it is important that they draw from a growing evidence base. There are multiple ways of interviewing children, and any given protocol should not be viewed as a "one size fits all" method. The current study provides further support for the NICHD Protocol as an approach to interviewing that is empirically derived and embodies best-practice principles. As such, it may assist interviewers in demonstrating the scientific rationale for adopting this approach as a means of promoting adherence to best practice guidelines and for eliciting complete, accurate, and reliable information from children.

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