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EFFECTS OF PRACTICING EPISODIC VERSUS SCRIPTED RECALL ON CHILDREN'S SUBSEQUENT NARRATIVES OF A REPEATED EVENT

Sonja P. Brubacher and
Kim P. Roberts
Wilfrid Laurier University

Martine Powell
Deakin University

Children (N = 240) ages 5 to 8 years participated in 1 or 4 activity sessions involving interactive tasks (e.g., completing a puzzle); children with single-event participation served as a control group. One week after their last/only session, all children were practiced in episodic recall of unrelated experiences by asking about either the (a) a single-experience event, (b) a specific instance of a repeated event, or (c) scripted recall of a series of events. Children were subsequently interviewed in an open-ended, nonsuggestive manner about 1 of the activity sessions; children with repeated experience were permitted to nominate the session they wanted to talk about. For children who participated 4 times, practice recalling a specific instance benefited 5- and 6-year-old children most; they reported more target details than other conditions and showed awareness of the repeated nature of the activity sessions. Accuracy levels were maintained regardless of practice type. Children with single-event experience were largely unaffected by manipulation of practice condition. Practical implications for interviews with child victim/witnesses and theoretical implications on children's ability to recall specific incidents of repeated events are discussed.

Keywords: memory, recall practice, interviewing, practice narratives, repeated events

Children's memories for repeated events are qualitatively different from memories of single-experience events (see Roberts & Powell, 2001, for a review). They tend to find it easier to describe what "usually happens" than to describe what happened the "last time" they engaged in a particular activity (Fivush, Hudson, & Nelson, 1984). But research has also shown that even when children have a script established, it is possible for them to describe individual incidents episodically when asked directly about specific incidents (e.g., Fivush et al., 1984).

For many children who make allegations of sexual abuse, the abuse is a

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Sonja P. Brubacher and Kim P. Roberts, Department of Psychology Wilfrid Laurier University, Waterloo, Ontario; Martine Powell, School of Psychology, Deakin University, Melbourne, Australia.

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Correspondence concerning this article should be addressed to Kim P. Roberts, Department of Psychology, Wilfrid Laurier University, 75 University Avenue West, Waterloo, ON, N2L 3C5, Canada. E-mail: kroberts@wlu.ca

repeated event. For example, in Lamb and colleagues' (1997) sample of 98 interviews with child sexual abuse victims in Israel, 42% of the cases involved three or more instances of abuse. In many jurisdictions, children with repeated abuse experience must provide enough detail about specific abusive instances to lay a charge (Guadagno, Powell, & Wright, 2006). Thus, it is imperative to research techniques that may increase children's ability to episodically report individual occurrences.

Research has demonstrated that *practice* describing an unrelated, neutral event does improve the quantity of information given by children about substantive issues in forensic interviews (Price, Collins, & Roberts, 2009; Sternberg et al., 1997), but it has never been determined whether the episodically oriented practice phase (e.g., as in the National Institute of Child Health and Human Development [NICHD] protocol; Lamb, Hershkowitz, Orbach, & Esplin, 2008; see Roberts, Brubacher, Powell, & Price, in press, for a review of research on the practice phase) is actually effective in promoting description of specific episodes in the substantive phase. The focus of the current research was to investigate how engaging in different types of recall practice for unrelated events affects children's reports of a target repeated event, and to make scientifically based recommendations for child-interviewing professionals.

Practice narratives of unrelated neutral or positive past events are recommended in forensic interviews to train children and interviewers in describing and eliciting, respectively, episodic information (Lamb et al., 2008; Orbach et al., 2000; Roberts et al., in press). This phase allows the child to practice responding to open-ended prompts and to understand the type of communication that will be expected in the substantive phase. It also allows interviewers to assess the child's level of communication and to practice asking for episodic information. The type of event discussed at this phase, however, could potentially have a number of different characteristics with respect to its frequency. A holiday (an often-used practice event) is a repeated event that happens on a yearly basis, and children have prior knowledge and operating scripts for these types of events (Nelson, 1986). Alternatively, children could also be prompted to describe a more frequently occurring repeated event, such as a weekly swimming lesson, or a novel event, such as a recent first trip to a museum. Although one goal of this phase is to encourage children to provide incident-specific "episodic" details (e.g., what happened *last* Halloween), if a repeated event serves as the practice topic, children may rely on their scripts and include scripted details in their narratives. The question then arises as to whether it might be effective to practice describing certain types of events (i.e., repeated) and whether the quality of the child's substantive narrative can be enhanced by explicitly directed practice in describing *specific instances of a repeated event*, which was the focus of the current experiment. To date, there exists no systematic research on different types of practice and few studies examining the effectiveness of the practice phase in general despite its use in interviewing children alleging abuse.

Research coming closest to making this assessment has been conducted by Sternberg and colleagues (1997) in the field and by Roberts, Lamb, and Sternberg (2004) in an analogue lab study. Both experiments compared the use of open-ended (e.g., "Tell me about yourself") versus direct questions (e.g., "How old are you?") in the presubstantive phase. Sternberg and colleagues demonstrated that

children given open-ended prompting in the presubstantive phase (i.e., rapport building and practice) provided more forensically relevant information in the substantive section of the interview than children who were asked direct questions in the presubstantive phase. As Roberts and colleagues' research was conducted in the lab, they were also able to determine that children given open-ended prompts in the practice phase generally provided more accurate accounts of a target event than children asked direct questions. Neither of these studies, however, compared the recall of children with single and multiple experiences as this was not their focus; however, as memories of repeated events are different from memories of single events, this is an important question (see Roberts & Powell, 2001, for a review). In addition, we do not know whether the level of event specificity used by the child and interviewer during the practice phase will have an effect on the quantity, and quality, of event-related information reported by the child.

In the current experiment, three recall practice conditions were compared across children who had participated in an interactive lab event one or four times. Specifically, before describing one (or the only) instance of the target lab event, children engaged in recall of a parent-provided recent event from their daily lives. In two conditions, children practiced talking about a repeated event, but the type of memory representation probed differed. In the *generic recall practice condition* (generic), children practiced recalling a repeated event occurring in their own lives in response to prompts that probed script (e.g., "Tell me what *happens* when you go to swimming lessons"); in the *incident-specific recall practice condition* (incident-specific), children practiced responding to prompts for episodic information (e.g., "Tell me what *happened* the last time at swimming lessons"). The final condition, *novel recall practice* (novel), also engaged children in episodic recall but for an event that happened just one time in the recent past. Although the latter two conditions both encouraged episodic recall practice, they differed in a very important way: Only the first gave children practice in monitoring the source of the details they provided (e.g., "Which time was it that I had a different teacher at swimming lessons? What happened that day?") and heightened awareness that individual episodes of similar events are relevant for discussion.

There were two goals for the current research. First, the benefits of *episodic* recall practice compared with other types of memory recall practice have not been empirically tested, and we demonstrate that a practice phase has benefits beyond fostering rapport and assessing a child's willingness to talk (Hershkowitz et al., 2006) and enhancing the information provided (Price et al., 2009); it also communicates to the child the need to describe episodic experiences rather than provide generic details. Second, from a theoretical perspective, it is not known whether there are developmental limitations in the ability to benefit from episodic recall practice, such as retrieving incident-specific details in spite of competing generic scripts or confusions across occurrences of the events, as is common when children recall a repeated event. Given limitations in working memory (e.g., Cowan, 2005) and inhibitory control related to communication (e.g., Nilsen & Graham, 2009), it cannot be assumed that children have easy access to both types of representations and the flexibility to move between them depending on the current task.

Children's Cognitive Representations of Repeated Events

Children's memories for details that are always the same across occurrences of a repeated event (i.e., "fixed") are very strong and accurate, which makes them more resistant to suggestions about those details than children who have experienced an event just one time (Roberts & Powell, 2005). They are likely to confuse the details that vary (i.e., "variable"), however, because they remember multiple variations of a detail across occurrences (Powell, Roberts, Ceci, & Hembrooke, 1999; Powell & Thomson, 1996). Confusions between multiple occurrences of a similar event are the most common type of error after repeated experience (e.g., Connolly & Price, 2006; Powell et al., 1999).

Understanding how children might discriminate memories of instances of repeated events has intrigued researchers for the past 2 decades (e.g., Connolly & Lindsay, 2000; Connolly & Price, 2006; Farrar & Boyer-Pennington, 1999; Farrar & Goodman, 1992; Lindsay, Johnson, & Kwon, 1991; Odegard, Cooper, Lampinen, Reyna, & Brainerd, 2009; Pearse, Powell, & Thomson, 2003; Powell & Thomson, 1996, 2003; Roberts & Powell, 2001, 2006). Although a cohesive theory of repeated-event memory remains elusive, we can make several theoretically guided predictions about children's reports in the current study.

According to *script theory*, children rely on general information in scripts to help them reconstruct their reports. Thus, practice in describing specific instances of a repeated event may help children describe an unrelated repeated event with more precision than other conditions because this type of practice encourages children to focus on episodic details of specific instances (which may not be exactly the same every time). Research on children's script memory has examined how events are represented when they differ slightly from an original event but remain consistent with the general event schema. Farrar and Goodman (1992) engaged 4- and 7-year-olds in an identical (standard) event one or three times, and then presented them with an event in which some details deviated. Younger children with repeated experience were more likely than older children to rely on the script that they had developed for the standard event, thus incorporating details from the deviation event into their accounts. The 7-year-olds were better able to form distinct memories for the visits, and Farrar and Goodman suggested that they built up a script faster than the 4-year-olds and so were able to notice deviations.

Fuzzy-trace theory (Brainerd & Reyna, 1990, 1993, 1998, 2004) is a dual-process model of cognition in that general event representations (*gist traces*) are encoded and stored independently and in parallel with surface details (*verbatim traces*). Thus, a verbatim trace can be later accessed (if it has not decayed) because it was encoded separately from the gist. Fuzzy-trace theory posits that verbatim and gist retrieval are dissociated processes, and therefore, engaging in verbatim recall for one memory set (episodic event from the child's daily life) might plausibly encourage continued verbatim recall for another memory set (target activities). Practice in describing a specific instance of a repeated event may also give the child practice in choosing the appropriate verbatim trace (i.e., the particular incident the child wishes to describe). In addition, if a child has just engaged in gist recall for an autobiographical memory, (s)he is likely to continue in that mind set for a target memory and, thus, prevent the retrieval of episodic details.

A third theoretical perspective is given by the *source-monitoring framework* (Johnson, Hashtroudi, & Lindsay, 1993). *Source monitoring* refers to the ability to consider the origins of a memory and is relevant to our understanding of children's confusion concerning the source of details when recalling an instance of a repeated event. This task is made more difficult when sources are similar, such as instances of a repeated event (e.g., Powell & Thomson, 1996) or information delivered by two similar speakers (Lindsay et al., 1991). The source-monitoring framework suggests that source is attributed at recall, based on the amount and quality of information available. Much of children's confusion of details across multiple occurrences is due to incorrect source attributions, and younger children struggle more than older children in making these source decisions (see Roberts, 2002, for a review). Source-monitoring training studies to date have been grounded on the notion that source training (e.g., practice in discrimination) using one set of event materials can be transferred to another set of materials (e.g., Poole & Lindsay, 2001; Thierry & Spence, 2002). Practice describing specific instances of a repeated event should highlight to children to consider the differences between occurrences (the sources) when talking about a repeated event.

All three theories predict that practice recalling episodes rather than generic information will benefit children because episodic recall practices children in selecting the event-specific details or verbatim traces rather than relying on their script or gist for reconstruction. In addition, because any instance of a repeated event can be considered a source, episodic practice exercises children in thinking about the sources of their memories. In particular, incident-specific recall practice should be most beneficial for increasing the amount of episodic detail later given about a different event as it gives the child experience in selecting one episode for discussion from a series of similar episodes. In addition, the theories suggest developmental differences, which we outline below.

Current Study

Approximately 1 week following the last or only session of a repeated event, we interviewed children in one of the three recall conditions previously described: incident-specific recall practice, generic recall practice, or novel recall practice. Children who participated in the event only one time were also included in each of the three practice conditions. Because child-maltreatment investigators may not always know whether a child will disclose single or multiple instances of abuse, it is necessary to determine whether different types of episodic recall practice have any negative effects on children with single-event experience (e.g., pressure to falsely claim that they participated more than once).

Subsequently, all children were asked about the laboratory activities they had participated in. Children who told the interviewer that they had repeated experiences with the event were asked about only one instance (session) of the event and permitted to nominate the target occurrence; children who did not provide any evidence that they had multiple experiences were also prompted episodically, but were asked only about frequency after their reports were exhausted.

Hypotheses

The main design of the study was a 2 (age group: 5- and 6-year-olds, 7- and 8-year-olds) × 3 (practice condition: incident-specific, generic, novel) × 2 (event frequency: single, repeated) between-subjects factorial design.

Effects of Practice Condition

For children with repeated experience, we predicted that those in the incident-specific condition would recall overall more information, indicate that the activities happened more than once, refer to more differences across sessions, mention more event-specific (i.e., variable) details relative to details present in every session (i.e., fixed), and have more unique labels for an instance than other children. Those in the incident-specific and novel practice conditions, having engaged in episodic language practice, were expected to use more episodic language in their target interview than children in the generic practice condition. Condition differences were not expected for children with single-event experience.

Developmental Differences

Older children were expected overall to recall more information than younger children, owing to more well-developed scripts and stronger verbatim traces (e.g., Brainerd & Reyna, 2004; Farrar & Goodman, 1992; Lamb et al., 2003). In addition, they were expected to refer to more differences across occurrences, provide a more distinctive label for their nominated occurrence (i.e., a name for the occurrence they chose to describe that uniquely distinguished that occurrence from the other three), and be more accurate at identifying the source (instance) of recalled details because of improved source-monitoring abilities (Johnson et al., 1993) relative to younger children.

Effects of Event Frequency

Children with repeated-event experience were predicted to recall overall more information than children with single-event experience. Children with single-event experience were included as a control group to ensure that practice in episodic recall of a repeated event would not negatively impact their narratives for a target single event. Evidence-based interviewing recommendations cannot be made without studying the effects of episodic and generic practice with a group of children who have not experienced a repeated event.

Method

Participants

Initially, 286 children were recruited from the local area via informed consent forms to their guardians. The final sample consisted of 240 children: 119 children ages 5 and 6 years (M age = 72.73 months, SD = 6.76) and 121 children ages 7 and 8 years (M age = 95.38 months, SD = 7.50). See Table 1 for cell sample sizes and mean ages in months. Of the 46 who were excluded, 37 were in the repeated condition (35 of them missed appointments, two were not proficient in English).

Table 1
Number of Participants and Mean Age per Between-Subjects Cell

Age group (years)	Condition	Frequency	*n*	Adjusted *n*[a]	Mean age (months)
5–6	Novel	Single	19	18	73.99 (5.26)
		Repeated	18	18	72.56 (8.33)
	Generic	Single	23	22	73.51 (6.17)
		Repeated	20	20	69.32 (7.95)
	Specific	Single	19	17	74.51 (6.45)
		Repeated	20	20	72.56 (5.55)
7–8	Novel	Single	21	19	94.94 (8.36)
		Repeated	20	20	95.52 (7.95)
	Generic	Single	19	18	95.41 (7.92)
		Repeated	20	20	94.90 (6.81)
	Specific	Single	20	18	94.86 (7.42)
		Repeated	20	20	96.17 (7.53)

Note. Standard deviations are in parentheses. Only age group is significant. All other Fs ≤ 2.55, *ns*, η_p^2s $\leq .01$.
[a] Nine children had no memory of the activities; adjusted *n* represents new cell sizes.

Of the nine children excluded from the single condition, six missed their interview session, and three were not proficient in English (determined by classroom teachers). Most of the children had not been assigned to an interview condition when they were excluded; thus, we did not compare them with the main sample.

There were 110 boys and 130 girls. Children were randomly assigned to practice condition and event frequency within age groups, although gender was kept as balanced as possible and did not affect any of the analyses reported. Most parents declined to provide their children's ethnicity. Children were recruited from a local daycare center, 10 public schools in the Waterloo Region, and a lab-maintained database containing contact information of local families who had expressed interest in research participation. Five of the schools were classified as belonging to low socioeconomic status (SES) neighborhoods ($n = 79$) and three schools and the daycare center to high SES neighborhoods ($n = 77$; Ontario Early Years, 2005). SES of children participating in the lab was not determined, but we classified them as mid-SES because they came from diverse neighborhoods around the region (including three medium-sized cities). In addition, one school was also classified as belonging to a mid-SES neighborhood ($n = 84$). There were no differences in SES on any of the amount of information or accuracy variables, assessed by one-way analyses of variance (ANOVAs), Fs < 1, *ns*. Informed consent from parents and assent from children were obtained. All participants were treated in accordance with ethical guidelines. Parents who came to the lab to have their children participate ($15) and schools ($50 per participating grade) received monetary compensation and children received a small toy (approximate value $4).

Materials

The props and activities presented to the children during the event sessions were based on those used in previous research on children's memory for repeated

events (Pearse et al., 2003; Powell et al., 1999; Powell & Thomson, 2003; Roberts & Powell, 2005, 2006), modeled on Powell and Thomson's (1996) original "Monash" and "Deakin" activities. The events consisted of 17 target details that took place within the context of several activities, in the following order: physical exercise, listening to a story, doing a puzzle, relaxing, and getting refreshed (see the Appendix). Whereas some of these activities may have been familiar (e.g., doing a puzzle), the individual props were created to be novel to all of the children who participated. As well, the sequence of activities that occurred was designed specifically for the activities such that children did not have preexisting scripts for these sessions.

Seven of the 17 details varied each time (variable*:* e.g., some children heard a story about twins, a boat, winter activities, and a dog across the four sessions). Five details were the same each time (fixed*:* e.g., children in another version of the counterbalancing heard the dog story four times). The remaining five details varied on a high–low frequency schedule. High-frequency details were the same for three sessions, and the low-frequency detail was the instantiation presented at the remaining session (e.g., juggling puzzle at Sessions 1, 2, and 4; bicycle puzzle at Session 3). The low instantiation was cycled through each of the four sessions such that there was one low instantiation of a high/low detail in each of the four sessions (and two low instantiations in one session because there were five of this detail type). Two counterbalanced versions of each set of events were created such that fixed details in Version 1 became variable and high/low details in Version 2, and so on, to control for any possible item effects. Half of the children in each age group, condition, and frequency group were randomly assigned to Version 1, the other half to Version 2. Children with a single experience were then randomly and equally assigned to one of the occurrences.

Design and Procedure

Half of the children participated in one 20-min event session of the Laurier Activities (hereafter referred to as "the activities"), and the other half participated four times spaced evenly over a 2-week period. All were interviewed in one of three practice conditions 5 to 7 days following their final or only session; interviews lasted 30 min. The 12 female interviewers were naïve to which specific groups the child had been assigned and to the hypotheses of the study. General interviewing instructions were taken from the NICHD Investigative Interview Protocol, which includes a "practice phase" in which the child and interviewer discuss a recently experienced neutral event from the past to familiarize children with the interview procedure and the amount of detail expected in response to prompts (Orbach et al., 2000). The protocol in the current experiment used the same guidelines (e.g., open-ended prompts) but experimentally manipulated whether episodic recall (as per the NICHD protocol) or generic recall was practiced, in addition to the frequency of the target event (repeated, single).

In the generic condition, children were asked to describe what usually happens when they take part in a repeated event from their daily lives (e.g., weekly swimming lessons). In the incident-specific condition, children were asked to describe what happened the *time they remembered best*, as well as one additional time when they engaged in a repeated event from their daily lives. We

gave children the opportunity to describe two incidents because incident-specific practice was designed to make children aware that instances of repeated events can have different elements. In the novel practice condition, children were asked to describe a recently experienced novel event, provided by their guardian. Novel events were one-time experiences, and the children were not to have had similar experiences. Despite prompting for two occurrences in the incident-specific condition, interviewers were limited to 5 to 7 min for all three conditions.

The interviewer then indicated that she had heard that some children did the activities but did not know what they were, and she asked the child to tell her everything (s)he could remember about them. It is important to note that the activities were always referred to in the plural, at each event session and at the interview, to represent the series of activities that happened in each session. Thus, referring to the activities in the plural at the interview did not convey information about event frequency. All children were questioned in an open-ended, neutral, nonsuggestive manner using invitations (e.g., "Tell me more") and cued invitations (e.g., "What else can you tell me about [detail already mentioned by child]?"). Generic prompts (e.g., "What do you usually do?") were not used in the substantive phase.

The child's narrative continued until either the child made a statement that indicated the activities happened more than once or until the child indicated that (s)he could not remember any more about the activities. Statements indicating that the activities may have happened more than once (e.g., ". . . and, on the last day, her cloak was red") were always followed up with the prompt, "You said [e.g., "on the *last day*"], did the activities happen one time or more than one time?" All children who made these spontaneous statements had experienced the event more than once, and all responded as such. The interviewer then immediately asked the child to discuss the "time you remember best." Children who did not disclose multiple incidents were asked if the activities happened more than once after recall was exhausted. As expected, no child with single-event experience spontaneously disclosed multiple incidents, and all were asked at the end of the interview whether the activities happened more than once.

Once the child had no more to say, the instance described was given a label that could be used to refer uniquely to the instance recalled. Labels were chosen either by the child or the interviewer. A child's label was chosen when the child had used a clear label throughout his/her account (e.g., "the first time," "the time I wore a leaf badge"). Many children, however, did not so directly label occurrences of repeated events (Roberts & Powell, 2003); therefore, the interviewer was often required to choose a label based solely on information that the child had provided. Thus, because the interviewers were blind as to which counterbalanced group the children were in, and because children sometimes failed to tell an interviewer that certain details were unique to one session or were inaccurate, not all labels uniquely identified one occurrence. In these cases, it was not possible to score the child's source accuracy (i.e., details that actually happened in the target occurrence) because a specific occurrence had not been identified. In this experiment, labels were generated primarily for coding purposes (i.e., to identify the occurrence being referred to). There is no extant literature on when labels should be introduced during an interview, which was beyond the scope of the current experiment. We elected to label at the end of the interview to allow children time

to provide enough information that a unique label was likely to arise (e.g., by having spontaneously told the interviewer about the badge worn the time remembered best and that the badges were different each day during the course of the interview).

Coding

Children's video- and audiotaped interviews were transcribed and made anonymous. Coders verified that each phase of the interview was carried out in the proper order and that the appropriate invitations for each phase were given. The phases included *initial prompt* (request to discuss activities), *open-ended prompts* (the body of the interview, probing information about the activities; e.g., "Tell me what else happened"), and *labeling* (termination of the interview when the narrative was given a label). A prompt included any request by the interviewer for more information (e.g., "Tell me more about *X*") and did not include statements of interest or facilitators (e.g., "okay," "mm-hmm," "that sounds like fun"). Prompts were counted for the practice and substantive phases separately. We now describe each set of coding procedures in the same order as we present the analyses in the Results section.

Awareness of event frequency. Coders located and recorded the phase in which children told the interviewer that the events happened more than once: spontaneously in response to the initial prompt, the later open-ended prompts, or when questioned in the labeling phase. Fifteen children with repeated experience said nothing in their interview to make an interviewer think that they had participated more than once; they had to be asked. Of the remaining children, 52 responded to the first interviewer prompt with information suggesting multiple experiences (e.g., "I remember on the last day we refreshed with water," or, sometimes, "Which time [should I tell you about]?"), and 47 children provided this information at some point later in the interview. In case these data affected subsequent analyses because children were asked to talk about "the time you remember best" only after the interviewer became aware that they had repeated experience (as suggested by an anonymous reviewer), we created a variable to represent the subgroups (location of multiple-incident disclosure: immediate, delayed, questioned) and included it as a covariate in the analyses (for repeated-event children only). The covariate affected the results of one ANOVA and was relevant to the analyses on children's labels, reported below.

Amount of information reported. The number of target details mentioned by children was counted. Because we wanted to compare reports from children with only one experience with the specific-episode reports from children with repeated experience (who naturally had exposure to more details), only one alternative per detail was counted. That is, children reporting several of the badges worn across the events only received a score of 1 for that detail in analyses concerning amount of information (coding concerning accuracy was handled differently). It would not be especially novel to demonstrate that children with exposure to more details report more information than other children; rather, we intended to show that, even when controlling for event frequency, children with multiple experiences still represent a greater proportion of details specific to one

instance. The raw totals were converted into proportions (i.e., out of 17 possible target details) for ease of interpretation.

Type of information reported. Details recalled by children in the repeated-event condition were coded as fixed, high, low, or variable (these categorizations were irrelevant to children with single experience). We predicted that fixed details would be reported with greater frequency than would variable details by children of both age groups regardless of condition because they occurred in every session. Children have strong memories for these repeated details (Powell et al., 1999), and there is little risk of reporting them incorrectly when talking about a specific episode. We also expected that children in the incident-specific group would report more variable and low details than the other two conditions because they would be attempting to distinguish one occurrence from the other three.

To answer these questions, the data were represented in two ways. First, we calculated the proportion of each detail type mentioned by children out of the full amount of details children could have provided from the entire series of events (i.e., five fixed, high, and low, and 28 variable). Second, we restricted their reports to details from only one occurrence (five fixed, five high/low, seven variable) and calculated the proportions for each detail type. In the latter analysis, we could not separate high and low details (which, in fact, represent alternatives of the same detail) because doing so would have confounded reporting of detail types with accuracy; that is, to determine how many of the low details were reported from a single episode, we would have had to count only the low details that were accurately mentioned. The latter analysis yielded very similar results to the former, and we limit presentation of findings to the first analysis only.

Awareness of differences. We tallied how often children in the repeated group spontaneously mentioned differences in the target details (e.g., "I had a jellybean badge, but we had buttons and feathers the other days") across sessions. There were a total of 12 possible details (seven variable and five high/low) for which children could mention a difference. To be counted, it had to be explicit that children were referring to differences across occurrences; statements simply listing alternatives were not credited (e.g., "we had jellybeans, buttons, feathers, leaves").

Labeling. For children with repeated experience, labels were coded as to who provided the label (child or interviewer), and whether or not the labels uniquely identified a single occurrence of the activities. For example, for Group 1, the cape was a variable detail; therefore, describing the exact color of the cape uniquely identified one occurrence. The bicycle puzzle was a low instantiation of the high/low puzzle item for the same group and also uniquely identified a single occurrence.

Accuracy. After identifying and coding the effectiveness of the label for the described occurrence, only the details mentioned by the child for the labeled occurrence were scored as to whether they were from the same occurrence as the label or were intrusions from other occurrences (internal intrusion errors). For the 15 children who did not spontaneously disclose event frequency, the details they provided were taken as their account; for the remaining children, only those details mentioned after they were asked to talk about the "time you remember best" were included. Here, all reported alternatives were included because they were relevant to accuracy; that is, a child reporting one badge (correctly) was

identified by the data as being more accurate than a child reporting all four possible badges. The accuracy score was calculated by dividing number of details reported that were actually present in the occurrence being described by the total number reported. This calculation was performed only on high, low, and variable details because fixed details were accurate for every occurrence.

Language use. Language coding was carried out for the practice, introductory (i.e., prior to disclosure of multiple incidents), and substantive phases to examine the extent to which children complied with interviewer prompts to (a) describe episodically either a novel experience or specific instances of a repeated event, or (b) describe a repeated event generically and (c) talk about a specific episode of the activities (once a target had been identified; see Schneider, Price, Roberts, & Hedrick, in press, for a similar but not identical coding procedure). Each information-requesting interviewer prompt (see Hershkowitz et al., 2006) was coded as episodic or generic. Prompts that could not be coded as episodic or generic were extremely rare because interviewers were trained not to give semantic prompts, such as "Tell me what your soccer uniform looks like." Prompts were coded as episodic if they referred to a specific event or occurrence (e.g., "You said you made a puzzle; tell me about the puzzle you made," "Tell me about the badge you got the last time," "What else happened that time") or used past-tense language when event frequency was not determined (e.g., "You said you heard stories at the activities; tell me about a story you heard"). Prompts were coded as generic if they encouraged children to recall scripted/general information (e.g., "You said you do puzzles; tell me more about the puzzles you do," "Tell me more about the badges you get," "What else happens?"). Interviewers were explicitly trained in, and regularly given feedback on, using these types of episodic and generic prompts.

Phrases (statements that contained at least a subject and a verb; e.g., "She put on a cloak"), rather than individual details, served as the units of analysis for children's responses because we were not interested in comparing whether episodic reports were richer than generic reports, but rather how effective the interviewer prompts were in encouraging episodic or generic responding. In general, statements in the timeless present (e.g., "*There are* lots of games to play" and "*You do it* [activities] in the lunchroom") were coded as generic. Statements containing past-tense language (e.g., "We *wore* a feather badge") or referring to a specific time (e.g., "*On the first day* we didn't know what she was going to do") were coded as episodic (Nelson & Gruendel, 1986; Schneider et al., in press). Although verb tense was a good indicator of episodic or generic language, coders did not rely exclusively on verb tense to categorize statements. For example, in the statement "Every day she brought out her puzzle," the verb is past tense, but the statement clearly refers to the child's event script. One- or two-word phrases that did not contain a verb or were otherwise ambiguous in referring to a script or episode (e.g., "feather and jellybean") were not counted. These were rare, however, as the invitations and cued invitations (e.g., "You said you got a badge; tell me more about the badge you got") used in the current study were known to elicit more information per prompt than were direct or option-posing questions (e.g., "What did badge did you get?" "Did you get a feather or jellybean badge?"; Lamb et al., 2008). Digressions (statements unrelated to the activities), omissions (i.e., "I don't remember"), and repetitive phrases were not counted. Proportion of

episodic language was calculated by dividing episodic language count by the total (episodic + generic) language count, separately for each phase, for children and interviewers. Proportion of generic language was not calculated as it was merely the opposite of the episodic proportion.

Reliability. Coders were trained by the primary author in coding procedures on 10% of the transcripts. Coders were aware of what type of practice children had been given, as this phase of the interview was also coded (e.g., for type of language used by children and interviewers), but were blind to the study hypotheses, participant age, and event frequency. After training, 15% of transcripts were coded for reliability purposes. Proportion agreement (number of agreements/number of agreements + disagreements) was used to assess reliability, except in the case of language coding, in which correlations were performed because of the high number of coding categories (i.e., we compared coding across interviewer and child separately, for each phase of the interview, and for episodic and generic language, as well as references to the future [which were almost nonexistent and were not analyzed], and the number of discriminatory references, yielding 24 comparisons per interview). Reliability was greater than .90 for all coding. Kappa was not an appropriate reliability coefficient because the coding procedures involved measurement of continuous variables and did not include discrete categories. When two thirds of the transcripts were coded, an additional 12 transcripts were randomly selected for double-coding, and agreement was consistent with earlier reliability assessments.

Results

Preliminary Analyses

Age in months served as the dependent variable in a one-way ANOVA on interview condition and frequency to ensure that there were no differences in age across these conditions. No comparisons were significant, Fs < 1, *ns,* η_p^2s $< .01$. Nine children had no memory of doing the activities and were excluded; they all had participated only once and were evenly distributed across practice conditions and age groups. In the repeated condition, four children terminated their interviews early because of unwillingness to continue, although they engaged in practice and did provide some event-related details, demonstrating a memory for the activities. They were all 5 and 6 years old; three had engaged in generic practice and one in incident-specific practice. Their data are included only in analyses concerning the practice phase.

Manipulation checks were conducted to determine whether children and interviewers used primarily episodic language in the practice phase in incident-specific and novel conditions and primarily generic language in the generic condition. Two one-way ANOVAs on the proportion of prompts/phrases coded as episodic confirmed that children and interviewers did engage in the intended type of practice (see Table 2 for statistics).

We next assessed the number of prompts interviewers gave to children in each of the three practice conditions, in a 2 (age group) $\times$ 3 (practice condition) $\times$ 2 (frequency) ANOVA, and found that younger children ($M = 15.01$, $SD = 6.65$) elicited more prompts than older children ($M = 11.63$, $SD = 5.75$), $F(1, 219) = 17.99$, $p < .001$, $\eta_p^2 = .076$. More prompts were used in the incident-specific

Table 2
Proportions of Episodic Prompts and Phrases Used by Interviewers and Children in the Practice Phase

Language in practice phase	Novel	Generic	Incident-specific	$F(2, 231)$	p
Interviewer prompts	$0.93\ (0.15)_a$	$0.02\ (0.07)_b$	$0.90\ (0.18)_a$	1068.03	<.001
Child phrases	$0.89\ (0.16)_c$	$0.19\ (0.22)_b$	$0.76\ (0.26)_a$	239.72	<.001

Note. Means sharing the same subscript across rows (analyses) are not significantly different.

condition ($M = 14.85$, $SD = 6.70$) than the generic condition ($M = 12.18$, $SD = 5.39$), whereas prompts used in the novel condition ($M = 13.04$, $SD = 6.89$) did not differ significantly from either of the previous two, as confirmed by post hoc analysis (Bonferroni, $p < .05$), $F(2, 219) = 4.15$, $p = .017$, $\eta_p^2 = .037$. No other effects were significant, Fs ≤ 3.07, *ns*, η_p^2s $\leq .014$. As there were differences in the number of prompts in practice given by interviewers, we tested this variable as a covariate in reported analyses. Only one analysis was affected, and the analysis of covariance (ANCOVA) is reported. To further ensure that interviewers did not treat children differently depending on practice condition, we entered the number of interviewer prompts used in the substantive phase into a 2 (age group) $\times$ 3 (practice condition) $\times$ 2 (frequency) ANOVA. As expected, the only effect was for frequency, $F(1, 219) = 244.66$, $p < .001$, $\eta_p^2 = .528$. Unsurprisingly, children with a single experience had less to tell the interviewer about; therefore, their interviews were shorter with fewer prompts ($M = 19.39$, $SD = 7.50$) than those of children with repeated experience ($M = 45.66$, $SD = 16.20$). No other effects were significant, Fs ≤ 1.47, *ns,* $\eta_p^2 \leq .013$.

Main Analyses

All of the following analyses were 2 (age group) $\times$ 3 (practice condition) $\times$ 2 (frequency) ANOVAs unless otherwise specified. Significance was set at $p < .05$ unless otherwise specified (i.e., the Bonferroni correction was used for all post hoc tests and for any other correction needed for multiple comparisons).

Awareness of event frequency. No child with single-event experience spontaneously disclosed multiple incidents. When directly asked, however, 11 said they did it more than once. They were evenly distributed across age group and practice condition, χ^2s ≤ 3.28, *ns*. Despite falsely claiming to have participated on more than one occasion, these children did not provide any details from other occurrences of the activities, so we can be sure that they were not erroneously placed in the wrong frequency condition postinterview. To further ensure that they did not differ from the children with a single experience who were accurate in claiming that they had participated only once, we compared the two groups (i.e., frequency question: inaccurate, accurate) on the proportion of episodic language used in the substantive phase and the number of discriminatory references they made as these two variables would be expected to show differences if children truly had a false memory of having participated more than once. In addition, we compared the groups on number of external intrusions to deter-

mine whether the 11 erroneous children were simply more likely to fabricate information. All comparisons were nonsignificant, *t*s < 1, *ns.* Children who incorrectly answered that they had participated more than once used as great a proportion of episodic language ($M = 0.99$, $SD = 0.04$) and provided as few external intrusions ($M = 1.36$, $SD = 2.01$) as children who accurately said one time (episodic language $M = 0.99$, $SD = 0.04$; external intrusions $M = 0.76$, $SD = 1.06$). None of these children made any discriminatory references.

A 3 (condition) $\times$ 3 (location of disclosure: immediate, delayed, questioned) chi-square test was conducted for children in the repeated-event group only. Children in the incident-specific condition were more likely to disclose event-frequency information immediately than children in the generic condition, as expected. In addition, more children in the novel condition had to be asked by the interviewer whether the activities happened more than once, and only one child in the incident-specific condition had to be asked (in the 7- and 8-year-old group), $\chi^2(6, N = 118) = 12.64$, $p = .049$. When the data were split by age group and the same analyses were run, it became evident that these effects were true only for the younger children, $\chi^2(6, N = 58) = 13.51$, $p = .036$, and not for older children, who tended to disclose multiple incidents immediately regardless of condition, $\chi^2(6, N = 60) = 3.86$, *ns* (see Table 3).

Overall amount of information provided. An ANOVA on the proportion of total details reported (maximum = 17, controlled for event frequency) revealed that there were main effects of both age group and frequency, Age Group $\times$ Condition, and Age Group $\times$ Frequency two-way interactions. No other effects were significant, *F*s ≤ 2.49, *ns,* η_p^2s $\leq .022$. See Table 4 for significant *F* statistics and means. Two follow-up one-way ANOVAs, one for each age group ($\alpha = .025$), confirmed that the Age Group $\times$ Condition interaction was a result of 5- and 6-year-olds in the incident-specific condition reporting proportionally more details than younger children in the other practice conditions, $F(2, 112) = 4.84$, $p = .01$, Cohen's $d = 0.64$. Older children, in contrast, did not differ as a function of practice condition, $F(2, 113) < 1$, *ns*, Cohen's $d = .28$ (see Table 4, upper portion). The Age Group $\times$ Frequency interaction was also explored using two follow-up one-way ANOVAs, and found that children with repeated-event expe-

Table 3
Observed (and Expected) Results for Location of Disclosure, by Age and Condition

		Interview phase			
Age (years)	Condition	Immediate	Open-ended	Label	Total
5–6	Novel	2 (3.3)	9 (11.3)	7 (3.3)	18
	Generic	3 (3.1)	11 (10.7)	3 (3.1)	17
	Specific	5 (3.5)	14 (12)	0 (3.5)	19
	Total	10	34	10	54
7–8	Novel	15 (14)	3 (4.3)	2 (1.7)	20
	Generic	11 (14)	7 (4.3)	2 (1.7)	20
	Specific	16 (14)	3 (4.3)	1 (1.7)	20
	Total	42	13	5	60

Note. Expected values are in parentheses.

Table 4
Proportions of Total Target Information Reported: Age Group × Condition and Age Group × Frequency Interactions

Variable	Age group (years)		Interaction		
	5–6	7–8	$F(1, 219)$	p	η_p^2
Practice condition			4.78	.009	.042
Novel	$0.24\ (0.14)_b$	$0.33\ (0.22)$			
Generic	$0.23\ (0.14)_b$	$0.38\ (0.25)$			
Specific	$0.34\ (0.18)_a$	$0.33\ (0.18)$			
Event frequency			7.84	.006	.035
Single	$0.17\ (0.08)_a$	$0.19\ (0.09)_a$			
Repeated	$0.36\ (0.20)_b$	$0.49\ (0.20)_b$			

Note. Standard deviations are in parentheses. Subscripts denote significant differences. These interactions subsumed main effects of age group, $F(1, 219) = 13.60$, $p < .001$, $\eta_p^2 = .058$, and event frequency, $F(1, 219) = 144.97$, $p < .001$, $\eta_p^2 = .398$.

rience reported proportionally more details than children with single-event experience in both age groups, but the effect was larger for older children, $F(2, 114) = 101.03$, $p < .001$, Cohen's $d = 1.88$, than for younger children, $F(2, 113) = 44.54$, $p < .001$, Cohen's $d = 1.26$ (see Table 4, lower portion).

Finally, we counted the number of references children made to things that did not happen during the activities (confabulations). These were extremely low, averaging less than one per child ($M = 0.69$, $SD = 1.10$). An ANOVA revealed that younger children made more confabulations ($M = 0.90$, $SD = 1.34$) than did older children ($M = 0.48$, $SD = 0.74$), $F(1, 219) = 9.38$, $p = .002$, $\eta_p^2 = .041$, but there were no other significant effects, Fs ≤ 2.74, *ns,* η_p^2s $\leq .024$. Most of children's confabulations (82%) were related to incorrectly naming a detail in the activities (e.g., saying that the story was about a horse). The remaining 18% generally referred to typical games played by children (e.g., Bingo, Duck Duck Goose).

Type of information reported. Because type of detail (fixed, high/low, variable) was irrelevant to children who only participated one time, and because they were counterbalanced across occurrence and group, we excluded them from the following analysis. We conducted a 2 (age group) × 3 (condition) × 4 (detail type: fixed, high, low, variable) mixed-measures ANOVA on the proportions of total possible details reported in the interview (fixed, high, low maximum = 5; variable maximum = 28). Mauchley's test of sphericity was significant; therefore, a Greenhouse–Geisser correction was applied. There were main effects of detail type, $F(2.33, 261.38) = 91.02$, $p < .001$, $\eta_p^2 = .448$, and age group, $F(1, 112) = 42.08$, $p < .001$, $\eta_p^2 = .270$, subsumed by a two-way interaction between them, $F(2.33, 261.38) = 5.52$, $p = .003$, $\eta_p^2 = .047$. No other effects were significant, Fs ≤ 1.04, *ns,* η_p^2s $\leq .018$. To examine the interaction, we conducted two repeated-measures ANOVAs on detail type, one per age group ($\alpha = .025$). For the younger children, the effect of detail type was significant, as was the test of sphericity, $F(2.055, 117.15) = 32.18$, $p < .001$, $\eta_p^2 = .361$. Post hoc tests indicated that younger children reported significantly more of the total possible fixed details ($M = 0.29$, $SD = 0.25$) than the high details ($M = 0.18$,

SD = 0.18), of which they reported more than variable (*M* = 0.07, *SD* = 0.07) and low (*M* = 0.07, *SD* = 0.10), the latter means not differing. The pattern of results was identical for the older children, $F(2.40, 141.50) = 59.95$, $p < .001$, $\eta_p^2 = .50$, with fixed (*M* = 0.52, *SD* = 0.28) > high (*M* = 0.35, *SD* = 0.22) > variable (*M* = 0.15, *SD* = 0.10) and low (*M* = 0.16, *SD* = 0.15). When we considered children's reports relative to one time (rather than reporting as much information as they could from the entire series of events), the results were very similar to those reported in the previous analysis, but there were only main effects of detail and age group, Fs ≤ 18.05, ps < .001, η_p^2s ≤ .14. There were no other main effects or interactions, Fs < 1, *ns,* η_p^2s ≤ .018.

Awareness of differences. To test the hypotheses that children in the incident-specific condition would be more likely than other children to refer to differences across sessions of the activities, we entered the raw number of differences mentioned into a 2 (age group) × 3 (condition) ANCOVA with location of disclosure as the covariate. The maximum number of differences was 12. Children with single-event experience were not included because it was impossible for them to mention differences across sessions (and indeed, they did not). There was a main effect of condition and a Condition × Age Group interaction. Specifically, the effect of condition was significant only for the younger children but not for the older children (see Table 5 for statistics). Post hoc analysis revealed that 5- and 6-year-old children in the incident-specific condition referred to differences significantly more often than younger children in both the novel and generic conditions. The only difference to the results without the covariate was that the main effect of age group was also significant (with older children reporting more than younger).

Labeling occurrences. For the child and the interviewer to discuss the same occurrence of the activities, a label for the occurrence was generated. We were interested in whether unique labels were generated, that is, labels that identified only one occurrence of the repeated event. All children with single-event experience did generate a label, and their labels by nature were unique; thus, the analyses reported below were not applied to their data.

For children in the repeated-event group, nine narratives were missing labels because their interview was terminated early (*n* = 4) or inappropriate labels had been generated (e.g., "fun time"). Seven of these children were 5- and 6-year-olds

Table 5
Mean Raw Totals and Standard Deviations of Age Group × Condition Interaction on Number of Difference References Provided in Substantive Phase

	Practice condition					
Age group (years)	Novel	Generic	Specific	$F(2, 112)$	p	η_p^2
5–6	$1.28\ (1.87)_b$	$1.90\ (2.40)_b$	$3.20\ (2.95)_a$	9.75	<.001	.26
7–8	$3.10\ (2.73)_a$	$3.95\ (3.25)_a$	$3.55\ (2.78)_a$	<1	*ns*	<.01

Note. Standard deviations are in parentheses. Subscripts sharing the same letter do not differ significantly. Maximum number of differences that children could identify was 12. Main effect of condition, $F(2, 112) = 5.00$, $p < .01$, $\eta_p^2 = .08$, and Condition × Age Group interaction, $F(2, 112) = 4.31$, $p < .05$, $\eta_p^2 = .07$.

roughly distributed across practice condition and one child was in the 7- and 8-year-old group in the generic condition. Thus, 109 labels were created; 53 (48.6 %) referred to variable details (e.g., "the time I wore a leaf badge"), six (5.5%) to a low detail, and 29 (26.6%) were temporal references (e.g., "first time"), with 24 of those (82.76%) referring to the first or last occurrence. The remaining 21 labels (19.3%) were not unique because interviewers were blind as to which instantiations were unique and because children themselves did not always choose unique labels. An independent-samples *t* test revealed that children with nonunique labels provided significantly fewer variable details in their narratives ($M = 3.90$, $SD = 3.43$) than did children with unique labels ($M = 7.89$, $SD = 4.33$), $t(107) = -3.92$, $p < .001$, and thus had a smaller amount of unique information to choose from.

A 2 (label provider: child, interviewer) × 2 (unique, not unique) chi-square test demonstrated that both children and interviewers were equally likely to generate unique labels, $\chi^2(1, N = 110) < 1$, *ns.* A 2 (age group) × 2 (unique, not unique) chi-square test revealed that younger children produced more nonunique labels, whereas there was a greater number of unique labels in the older age group than would be expected by chance, $\chi^2(1, N = 110) = 6.56$, $p = .01$. Splitting the data by age group and analyzing condition revealed a nonsignificant trend for younger children in the generic condition to have more nonunique labels and younger children in the incident-specific condition to have more unique labels, $\chi^2(2, N = 51) = 5.72$, $p = .057$. There were no effects for older children, $\chi^2(2, N = 59) = 1.01$, *ns*. We then assessed these findings using the location of disclosure covariate (immediate, delayed, questioned). Unsurprisingly, children who disclosed multiple incidents immediately were more likely to have unique labels (owing to the fact that they recognized and reported differences across occurrence), whereas those who were later to mention event frequency were less likely to have unique labels, $\chi^2(2, N = 109) = 7.12$, $p = .028$.

Accuracy. To determine whether children with repeated experience were accurate with respect to the details reported about the time remembered best (i.e., source accuracy), we used the label to calculate an integrity score. Thus, the label had to uniquely identify a single occurrence. High, low, and variable target details mentioned by the child were scored as accurate if they were present in that occurrence, and the score was calculated by dividing the number accurate into the total number of details mentioned by the child as having been present in that occurrence. Fixed details were present in every occurrence and were thus not included in the calculation of children's source accuracy. It was not possible to analyze accuracy for each detail type individually because not all children mentioned each type of detail. The source score of children whose source accuracy could be determined served as the dependent variable in a 2 (age group) × 3 (condition) ANCOVA as the number of prompts in practice significantly affected the analysis. The only effect was of age group, $F(1, 73) = 4.08$, $p = .047$, η_p^2s $= .053$. Older children ($M = 0.61$, $SD = 0.27$) were significantly more accurate than younger children ($M = 0.51$, $SD = 0.30$). The incident-specific condition ($M = 0.56$, $SD = 0.31$), generic condition ($M = 0.53$, $SD = 0.35$), and novel condition ($M = 0.60$, $SD = 0.29$) did not differ significantly. No other effects were significant, Fs ≤ 1.22, *ns,* η_p^2s $\leq .016$. Without the covariate, there were no significant effects.

Language use in substantive phase. The proportion of episodic language in children's target narratives (substantive phase) was entered into an Age × Condition × Frequency between-subjects ANOVA. There were main effects of condition, $F(2, 219) = 15.64$, $p < .001$, $\eta_p^2 = .125$, and frequency, $F(1, 219) = 78.47$, $p < .001$, $\eta_p^2 = .264$, and an interaction between the two, $F(2, 219) = 10.53$, $p < .001$, $\eta_p^2 = .088$. Splitting the data by frequency and running two planned one-way ANOVAs on condition ($\alpha = .025$) revealed that children with single-event experience did not, as expected, differ as a function of condition, $F(2, 110) = 1.90$, *ns*. For the repeated group, those in the incident-specific and novel conditions used significantly greater proportions of episodic language than did children in the generic condition, $F(2, 115) = 14.06$, $p < .001$. No other effects were significant, Fs < 2.93, *ns*, η_p^2s $\leq .088$ (see Table 6 for main effect means).

Of interest for the children with repeated experience was the language used prior to being asked about the time remembered best (i.e., before event frequency was known). Proportion of episodic language in the introductory phase was entered into a 2 (age group) × 2 (condition) ANOVA. There were main effects of age group, $F(1, 111) = 4.28$, $p = .041$, $\eta_p^2 = .037$, and condition, $F(2, 111) = 20.50$, $p < .001$, $\eta_p^2 = .270$. The interaction component was not significant, $F(2, 111) = 2.17$, *ns*, $\eta_p^2 = .038$. Older children ($M = 0.81$, $SD = 0.31$) used more episodic language in the introductory phase than did younger children ($M = 0.69$, $SD = 0.35$). Again, children in the novel ($M = 0.93$, $SD = 0.15$) and incident-specific conditions ($M = 0.81$, $SD = 0.30$) used more episodic language in the introductory phase than did children in the generic condition ($M = 0.53$, $SD = 0.37$), the former means not differing significantly.

Discussion

The goal of the current study was twofold: to determine (a) whether practice in describing repeated events is beneficial for children with repeated-event experience (i.e., does the type of practice event matter); and (b) whether episodic practice, as prescribed by interview protocols such as the NICHD protocol, is effective in eliciting episodic information. Specifically, we systematically tested how practice in episodic or generic recall of an unrelated event affects the episodic quality of children's reports about a target single or repeated event, and whether there are age differences in the utility of these techniques. We demonstrated that children can be differentially motivated to retrieve episodic or generic

Table 6
Proportion of Episodic Language Used by Children in the Substantive Phase as a Function of Condition and Event Frequency

	Event frequency	
Condition	Single	Repeated
Novel	0.98 (0.05)	$0.88\ (0.16)_a$
Generic	0.97 (0.09)	$0.66\ (0.29)_b$
Specific	0.998 (0.02)	$0.80\ (0.23)_a$

Note. Standard deviations are in parentheses. Subscripts sharing the same letter do not differ significantly.

information in practice and substantive phases. As predicted, children with repeated experience in the incident-specific condition were more likely to tell the interviewer, spontaneously and immediately, that the activities were a repeated event. When we examined the data separately for each age group, however, these findings were observed only for the 5- and 6-year-old children, whereas older children were quite likely to make mention of event frequency in response to the first substantive prompt. This pattern of results was observed several more times in our analyses; 5- and 6-year-olds in the incident-specific condition also provided more target information and mentioned more differences across occurrences than other younger children, whereas practice condition had little effect on the older children. Children of both age groups with repeated-event experience used more episodic language when talking about an instance of the activities if they had been practiced in episodic recall (incident-specific and novel) than if they had been practiced in generic recall, even though interviewers used exclusively episodic prompts in the substantive phase (e.g., "What else happened at the Laurier activities?") with all children in all conditions. When we examined the style of language children used prior to disclosing multiple incidents, the condition effects were identical, but age effects were also observed: Older children (who were also likely to disclose multiple incidents quickly) used more episodic language than did younger children.

Additional developmental differences were evidenced. As predicted, older children reported overall more information when proportion of details mentioned was considered out of the series total or out of an instance, they were more accurate in attributing details to the target occurrence, and more older children generated unique labels for their target occurrence. With respect to frequency, as expected, children with multiple experiences reported more (i.e., of the 17 target details in a given event) than children with a single experience, even though we controlled for the amount of exposure children had to the details. In addition, when they described their experience at the activities, children with a single experience used nearly 100% episodic language; certainly, we did not expect them to provide generic event information. They did, however, provide generic information in practice if prompted to do so. These results clearly demonstrate that the type of interviewer prompts provided in the practice phase (e.g., generic) do not automatically incite the child to use a similar linguistic style in the substantive phase if it is not correspondent to the child's memory recall. That is, the children who participated in the lab activities one time, who engaged in generic recall of a repeated event from their own lives, switched to retrieving, and reporting, an episodic memory when asked about the activities. In contrast, children with repeated experience who engaged in generic practice continued to use more generic language when talking about a target activity occurrence despite episodic interviewer prompts because it was possible for them to access a generic memory representation. We now discuss the findings in greater detail, with particular attention to the goals of the research.

Type of Practice

We first considered whether certain types of practice may be more appropriate for children with particular event experience (i.e., repeated). It was expected that

practice in describing specific instances of repeated events would improve episodic recall in three ways: (a) by encouraging children to examine their memories for "what is different" across instances of repeated events, (b) by increasing the chances that children would label an instance using details unique to that instance, and (c) by improving source-monitoring accuracy. Regarding (a), Roberts and Powell (2003) found that close to one third (27%) of 5- and 6-year-olds were unable to identify anything that was different about the "target event" from the other times following participation in a similar repeated event ("Deakin" activities) without the manipulation of a practice phase. In a more recent study of repeated-event memory, children who were given an opportunity to describe an instance of their choosing more often reported details that were the same, rather than unique, across occurrences (e.g., Brubacher, Glisic, Roberts, & Powell, 2010). Yet, in the current study, younger children in the incident-specific condition made more references to differences between the individual sessions of the activities, consistent with our expectations. These findings suggest that although substantial episodic information is available, younger children need guidance to spontaneously retrieve and report this information. Practice describing two instances of a highly similar event (e.g., swimming lessons, soccer practice) may have encouraged younger children to think more carefully about the differences between occurrences. In contrast, it may have been more natural for the 7- and 8-year-olds to do so, based on what is known about children's source-monitoring development (Roberts, 2000). Note, however, that there were no condition effects on children's reporting of the various detail types. We predicted that all children would report more fixed details than the lower frequency types, and they did, in keeping with previous research (e.g., Brubacher et al., 2010). We also predicted, however, that children in the incident-specific condition would report more variable and low details than children in the other conditions because these details were related to differences across occurrences, but these predictions were not supported. Children in the generic and novel conditions reported equal proportions of these details (e.g., "She gave me a button *badge* to put on my shirt") as children in the incident-specific condition. Yet, the younger children in the incident-specific condition added more information, as demonstrated in the analysis on the awareness of differences (e.g., ". . . and on the other days, she gave us different ones, like jellybeans").

It was expected, and confirmed, that more older children would generate unique labels than younger children. It was also hypothesized that children in the incident-specific condition would have more unique labels than other groups because of heightened awareness that repeated occurrences have some distinguishing features. Although the latter analysis did not reach significance, the data demonstrate a trend ($p = .057$) toward 5- and 6-year-old children in the incident-specific condition having more unique labels than other younger children, but there were no condition differences for the older children. In fact, fewer than half of the 5- and 6-year-olds in the generic condition were successful at achieving a unique label for their narrative, even with the help of the interviewer. This finding suggests that generic practice, which does appear to encourage a focus on similarities, could be detrimental to young children attempting to uniquely identify one instance of a repeated event. According to the source-monitoring framework, memories of highly similar events are more easily confused than those in

which the perceptual features are relatively more distinct (Johnson et al., 1993; Lindsay et al., 1991). From this line of reasoning, it follows then that children who focused to a greater extent on what was the same across occurrences of our repeated events (i.e., the general event representation) should have more difficulty isolating specific instances than children who reported a greater number of distinct features.

Memory researchers often distinguish between the amount of information that is retrieved and the accuracy of that information (e.g., Elischberger & Roebers, 2001; see also Koriat, Goldsmith, Schneider, & Nakash-Dura, 2001, for a demonstration of the "amount" vs. "accuracy" trade-off in children 7 to 12 years old). In the current study, no effects of practice on memory accuracy were observed. Thus, even though 5- and 6-year-old children in the incident-specific condition provided more target details (i.e., substantive information) than did other younger children, their accuracy did not suffer (i.e., they were not simply saying more). It was expected that older children would be more accurate than younger children in attributing details to the correct occurrence, even though they would have a larger pool of gist-consistent instantiations from which to choose—either correctly or incorrectly (Brainerd & Reyna, 2004), and with the inclusion of the number of prompts in practice covariate, this finding was supported.

Although the same length, interviewers did use more prompts with younger than older children in the practice phase and in the incident-specific condition than in the generic condition (with the novel condition not differing from either). In practical terms, there was an average difference of fewer than three prompts across the conditions, which stem in part from the interviewer requesting that the children in the incident-specific condition discuss another time when they had engaged in their repeated event. Nevertheless, as discussed, this covariate only affected the results of the analysis concerning accuracy and only affected the findings related to age differences.

Effectiveness of Episodic Practice

We turn now to the second goal of the research, to determine whether episodic practice is effective in eliciting episodic information about substantive issues. It is important to note that all children in the current study were interviewed using the most optimal procedures (i.e., rapport building, the use of a practice phase, open-ended prompts throughout the entire interview, no suggestive or option-posing questions; Lamb et al., 2008; Lamb, Orbach, Hershkowitz, Esplin, & Horowitz, 2007). Even for children in the generic condition, the practice phase embodied all elements of "good" practice (Price et al., 2009), except probing for episodic details. That is, a pleasant, autobiographical event was discussed, allowing for rapport building (Roberts et al., in press), and children practiced responding to open-ended prompts, which research has demonstrated results in more information (Sternberg et al., 1997) and more accurate information (Roberts et al., 2004) in the substantive phase.

We demonstrated that children do generally respond with the same kind of language as used by the interviewer, which is consistent with previous research by Schneider and colleagues (in press). Thus, episodic practice elicits, at the very least, language that sounds like an episode is being described, which can make

children's reports appear more credible (Connolly, Price, Lavoie, & Gordon, 2008). More important, however, children who were practiced in talking about episodic memories (either specific instances of a repeated event or a single event) continued to use more episodic language in the substantive phase than children who practiced retrieving generic event representations, even though interviewers exclusively used episodic prompts in the substantive phase.

These findings suggest that children are doing more than simply mimicking interviewer language while they are engaged in practice. If they were merely mimicking, children in the generic condition should not have differed from the children in other conditions in their language use in the substantive phase (they should have switched to episodic). Evidence for this notion arises in several of our analyses. For example, the younger children in the generic condition disclosed event frequency later in the interview than their peers in the incident-specific condition. In addition, there was a trend for younger children in the generic condition to have more nonunique labels ($p = .057$), which is important in practical terms to forensic interview situations. Finally, when examining the means for proportion of episodic language, children in the generic condition used a descriptively lower proportion of episodic language in the introductory phase, before they were asked to describe a specific instance, than in the substantive phase. Thus, they continued in the same language style (and, we suggest, in the same recall mode) despite episodic prompts from the interviewer. The mean proportion of episodic language for the other two conditions was more comparable.

Differences in practice conditions were generally not predicted for children with single-event experience as they were a control group to ensure that there were no negative effects of practice in describing repeated events when the target event was a one-time experience. In general, we found few effects of practice condition for the control group. Although a small number of children with a single experience falsely responded "more than once" to the frequency question, the children did not provide any spontaneous information to imply that they had repeated-event experience, and they did not differ across practice conditions. When we examined their transcripts, we found that two of the children responded to the frequency question by saying that they had done the activities twice, that the interview was the second time. We cannot infer that the remaining nine children held this same perception, but it is certainly a possibility. Nevertheless, although beyond the scope of the research, this finding does raise the query of whether the option-posing "one time or more than one time" question is appropriate for children in this age range. The best-case scenario is when children can be motivated to disclose event frequency themselves, as none of the children with a single experience spontaneously falsely claimed multiple experiences.

The results of the current research point to the benefits of episodic practice, and specifically incident-specific practice, especially for the young children. The finding that a technique enhances recall and overall performance for youngest children who are most in need of support is a common theme in training studies (e.g., Thierry, Spence, & Memon, 2001). Younger children often have difficulties in producing various memory strategies on their own, but can be encouraged to do so through training, whereas the older children are capable of producing the strategy spontaneously. Research on the NICHD protocol itself has shown that

younger children (4- to 8-year-olds) can be motivated to provide as much information as older children (9- to 12-year-olds) when given open-ended invitations (e.g., "Tell me more"; Sternberg, Lamb, Orbach, Esplin, & Mitchell, 2001). It is likely that younger children have production deficiencies, in that they can use the cognitive strategies trained by incident-specific practice, but do not do so spontaneously. Older children, in contrast, may already be thinking about differences among repeated events and have less need for the training (see Flavell, 1970; Harnishfeger & Bjorklund, 1990).

Investigative Interviewing

In investigative interviews, if a child is not asked about multiple incidents and begins the narrative with a script-like description of the abuse, the child is rehearsing the script or strengthening the gist trace (Brainerd & Reyna, 2004). This process may speed up the decay of verbatim information. Younger children in the generic condition disclosed that the event occurred more than once later in the interview than those in the incident-specific condition, and younger children in the novel condition were likely to require questioning about multiple incidents. Although the generic condition encouraged generic recall and the novel condition encouraged episodic recall, these two conditions were similar in that neither of them emphasized the fact that individual but highly similar incidents of a repeated event may still have contained distinct information that needed to be reported. Only incident-specific recall practice was followed by admission of the repeated events early in the substantive phase. Our findings suggest that practice in using scripts to report one set of memories does encourage continued use of scripts in reporting other memories to a greater extent than practice in describing episodes, and that practice describing a single-experience event may lower awareness that the interviewer needs to know whether the target event was a repeated one.

Interviewers sensitive to language may potentially notice script-like dialogue and thus realize that a child might be describing a repeated event. However, because there were no differences in the language used by children in the incident-specific and novel conditions, either prior to or after disclosure of event frequency, this finding is especially concerning; many of the children in the novel condition (who had repeated experience) had to be asked whether the activities happened more than once. It is possible that children with repeated-event experience in the novel condition were only describing one occurrence, but this is unlikely because their source accuracy scores were not higher than those in other conditions. Alternatively, children could have provided an episodic but amalgamated account of the activities, for example, giving an account that sounded like it was just an occurrence but actually included details from several instances. Novel event practice might then increase the chances that the memory trace for that confused account is strengthened. Another concern is that children who have practiced recalling a novel (one-time) event might never disclose other abusive incidents.

The incident-specific condition was the only technique to efficiently elicit narratives about repeated events (i.e., resulted in children's spontaneous and early disclosure of event frequency, and increased the amount of episodic information reported without increasing inaccurate details). Such a technique is very useful for

investigative interviewers. An episodically oriented practice phase is already being used in some protocols (e.g., NICHD). The current study is the first to systematically test how differences in recall strategy differentially equip children to report episodic details about a target event, regardless of whether the target event occurred once or more than once. The practical recommendation, then, is to encourage interviewers to practice children in reporting episodic instances of a repeated event to most effectively elicit episodic details about a target event or events.

Implications

All findings taken together, benefits were observed for children in the incident-specific practice condition, especially among 5- and 6-year-olds. Even though their narratives were neither more nor less accurate, they disclosed multiple incidents earlier, used more episodic language, and recalled more differences across sessions than other younger children, possibly making their narratives appear more organized.

This is the first experiment to demonstrate that, in spite of strong scripts and source confusions, episodic information about specific instances of repeated events must also be encoded and, remarkably, can be retrieved by children themselves when given the appropriate support. The current research has added to the body of literature on children's repeated-event memory, and demonstrated that practice in one strategy for retrieval of an autobiographical repeated event can translate to the same type of retrieval (e.g., episodic, scripted) for an unrelated set of repeated events. Such a technique could be easily employed by investigators in the field. First, it does not require that investigators have knowledge of the substantive event(s). Second, interview length or quality will not change for interviewers who already follow the recommendation to conduct a practice interview before discussing any allegations. Finally, the novel and unambiguous results of this study show that children have the best chance of being able to report information that is available if interviewers encourage them to fully describe one or two instances of a repeated event in the practice phase of investigative interviews. Interviewers can be confident that this recommendation is based on scientific evidence.

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(*Appendix follows*)

Appendix

Schedule of Activities (in Order of Appearance) for Group 1

Detail	Type	Session 1	Session 2	Session 3	Session 4
Children sit on	Fixed	Garbage bag	Garbage bag	Garbage bag	Garbage bag
Cloak	Variable	Green	Blue	Yellow	Red
Badge	Variable	Leaves	Buttons	Feather	Jellybean
Fox's name	High/low (1)	Pop	Jo	Jo	Jo
Noisy animal	Fixed	Walrus	Walrus	Walrus	Walrus
Warm-up activity	Variable	Touch toes	Jump	Wiggle fingers	Dance
Source of story	Fixed	Internet	Internet	Internet	Internet
Content of story	Variable	Party	Boat	Winter	Dog
Bookmark	High/low (2)	Circles	Squares	Circles	Circles
Utensil	Variable	Chalk	Marker	Crayon	Pencil
Puzzle	High/low (3)	Tightrope	Tightrope	Bike	Tightrope
Music	High/low (4)	Birds	Birds	Birds	Waves
Part of body	Fixed	Stomach	Stomach	Stomach	Stomach
Getting refreshed	High/low (1)	Sanitizer	Fan	Fan	Fan
Sticker	Variable	Apple	Ball	Dinosaur	Rocket
Container	Variable	Envelope	Jar	Purse	Box
Next stop	Fixed	Hospital	Hospital	Hospital	Hospital

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