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The effect of repeated experience on children's suggestibility across two question types

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The effect of repeated experience on children's suggestibility across two
question types.

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Abstract

There is a discrepancy in the literature regarding the effect of repeated experience on
children's suggestibility. Some researchers have concluded that repeated experience increases
children's suggestibility for variable details whereas others have reported no detrimental effect.
This study demonstrated that the type of question used to test memory (cued-recall vs. yes/no
questions) could account for the different reported conclusions. Children aged 5-6 years took part
in an event either once or four times. Three or 21 days later, they were given a suggestive interview
about the single/final occurrence of the event during which half of the event details were
inaccurately described. When later asked yes/no questions, the children with repeated experience
agreed with more of the suggestions than did those in the single-experience condition, especially at
the longer delay. In relation to cued-recall questions, however, experience did not mediate the
number of times that false suggestions from the biasing interview were reported. This latter finding
was revealed irrespective of the retention interval.

The effect of repeated experience on children's suggestibility across two question types.

Most research on children's suggestibility follows a model where the child participants experience a single staged event, are later exposed to information about the event by an interviewer (some of which is inaccurate) and are then interviewed about the event. In many trials in which children testify, however, the matter involves an event that was <u>repeated</u> (e.g., acts of sexual or physical abuse that occurred on numerous occasions). In normal legal proceedings, for an alleged offender to be charged and convicted in relation to a repeated offence, at least one specific occurrence must be identified with reasonable precision with reference to place and time (see *S v. R.* 1989). The act of remembering an occurrence of a repeated event after a delay in time is a more difficult task compared to remembering a single event because witnesses need to make source judgements about when particular details occurred in the sequence. These judgements are especially difficult for child witnesses whose knowledge of time and sequencing ability is not as well developed as that of adults (Friedman, 1991). It is critical, therefore, that lawyers and investigative interviewers consider research that examines ways of minimising error in child witnesses' accounts about repeated events. In the present study, we assessed the effect of repeated experience on children's suggestibility across two types of questions that are commonly used in forensic settings; cued-recall versus closed (yes/no) questions (Home Office and Department of Health, 1992; Lamb *et al.,* 1996; Warren *et al.,* 1996).

Previous research has demonstrated that the degree to which children can remember an occurrence of a repeated event is determined by a wide range of factors including the age of the child, the time between the event and the interview, and the nature of the event details being recalled. After multiple occurrences of an event, details that are fixed (experienced exactly the same way during each occurrence) are strengthened in memory and are therefore well remembered over time compared to details of an event that was experienced only one time (Holliday *et al.,* 1999; Hudson, 1990; Pezdek & Roe, 1995; Powell & Thomson, 1996). The better items are remembered, the less likely they are to be contaminated or altered (Pezdek & Roe, 1995). However, with regards to children's recall of details that <u>varied</u> across the occurrences (e.g., remembering what clothing was worn by a person the last time the event was experienced when the items of clothing differed each time), repeated experience has detrimental effects on children's ability to remember a particular occurrence. Specifically, the number of correct details reported about a <u>particular</u> occurrence is lower than when recalling a single event and intrusions of details from other occurrences (hereby referred to as internal intrusion errors) are common (Hudson, 1990; Powell & Thomson, 1996; Farrar & Goodman, 1992). While external intrusion errors (the reporting of details that had not been included in <u>any</u> occurrence) are less likely to be reported by children who experienced a repeated versus a one-time event, the number of internal intrusion errors outweighs the number of external intrusion errors reported by children who have experienced a single occurrence.   The high number of internal intrusions arise because recalling an occurrence of a repeated event involves memory of <u>content</u> (i.e., remembering which details were experienced in the event per se) as well as the capacity to remember the source or <u>temporal location</u> of details (i.e., remembering precisely which details were included in the target occurrence while keeping this occurrence distinct from other occurrences in time). While memory for both the content and temporal source of details declines over time, the decline is more rapid for temporal information (Powell & Thomson, 1997a).

The problems associated with the recall of variable details of an occurrence of a repeated event are accentuated under certain conditions. The more frequently events are experienced, the longer the time delay between the event and the interview, and the greater the similarity between the events, the more difficult it is to keep track of which details were included in a particular occurrence (Lindsay *et al.,* 1991; Powell & Thomson, 1996; 1997a, 1997b, Roberts & Blades,

1999). Young children (i.e., 4-5 year olds) have greater difficulties in discriminating between occurrences of a repeated event than older children (Farrar & Goodman, 1992; Powell & Thomson, 1996). Further, the accuracy of children's recall of an occurrence of a repeated event is shaped by the manner in which memory is tested. When children are asked to freely report what happened in an occurrence of a repeated event in their own words, they provide few specific features that discriminate one occurrence from others in a series. In contrast, when questions are asked which focus the child on aspects of the event that were likely to have varied, the child provides a greater number of correct specific details about the occurrence compared to that which is provided during free recall (Powell & Thomson, 1996). This is because details contained in questions cue the child to information that is available in memory but could not be spontaneously recalled (Dent & Stephenson, 1979). However, the number of errors increases with the use of more highly specific questions because when the interviewer requests specific information that is not available or accessible, the child may guess or make up a response merely to comply with the interviewer's request or may be led to believe that the interviewer's assumptions are correct. These demand characteristics are particularly strong in relation to yes/no or forced-choice questions because a child can choose an option offered by the interviewer even when they do not understand the question. These questions do not encourage elaborate memory retrieval and they imply that one of the options presented by the interviewer is correct. Further, if the question incorporates false information about the occurrence, this false information may be later incorporated into the child's account of the event (Ceci & Bruck, 1993).

While all children are susceptible to suggestive or leading questions (Ceci & Bruck, 1993), the issue of suggestibility is particularly pertinent in relation to repeated events. This is because repeated experience has been shown to increase children's willingness to accept false information suggested by an interviewer. For instance, in research by Connolly and Lindsay (2001) 4-, 6- and 8-year-old children participated in either one or four sessions of a play event at their school or daycare. The event involved a paper folding game and a magic trick, and for the repeated event, some of the details that made up these activities (e.g., the object that was made or the magic words that were said) changed in every occurrence. Three days after the target occurrence (the final or single occurrence), details that had not occurred in any of the sessions were suggested to have occurred during the target occurrence (e.g., the interviewer told the children that they used a yellow wand to do magic when the wand was silver). The next day, when memory of the target occurrence was tested using yes/no questions (e.g., "Was the wand silver?"), children in the repeated condition inaccurately claimed that the suggested detail occurred more than did children in the single event condition. The authors interpreted their results in terms of script theory. After repeated experience, an abstract cognitive representation of what usually happens in the event is generated (see Farrar & Goodman, 1992; Hudson *et al.,* 1992, for reviews). Variable details are supposedly represented as a dynamic list-like set of options, none of which are strongly associated with a particular occurrence of the event. If the interviewer suggests a novel instantiation of a variable detail that is consistent in theme with the other listed options, this may be incorporated as a false memory of a schema-consistent option.

Interestingly, however, a detrimental effect of repeated experience on children's suggestibility has not been apparent across all research. In two experiments conducted by Powell *et al.* (1999) the effect of suggestive questions was examined on children's recall of the final occurrence of a series of four events across various age groups (i.e., 3-5, 5-6, and 6-8 years). Each event involved a series of activities; a warm-up exercise, a story, a puzzle, a resting activity and a surprise. Some of the details that made up the activities varied in each occurrence (e.g., the children always received a surprise sticker but the theme of the sticker differed each time the event was experienced). At various delays (3 days, 1 week and 3 weeks), children received a biasing interview where false details were suggested to have occurred in the final/single occurrence. One

day after the biasing interview, the children were required to recall which details occurred in the final occurrence (e.g., "What was on your sticker?") The results indicated that repeated experience led to a decline in memory of the specific occurrence. However, this effect was not associated with increased susceptibility to suggestions about details that had not occurred in the event. Most errors in recalling the occurrence of the repeated event were intrusions of details from non-target occurrences. In fact, the children who experienced the repeated event were <u>no more likely</u> to recall the interviewer's false suggestions than were the children who participated in the single event.

The different effect of suggestive information in Connolly and Lindsay's and Powell *et al.*'s research is difficult to interpret because of methodological differences between their experimental designs. One major difference was the questioning procedures that were used to elicit the children's memory of the occurrence. In Connolly and Lindsay's work, the effect of repetition was examined in response to yes/no questions in which children were given the option of agreeing or disagreeing with the presence of true and false details. In the experiments by Powell *et al.*, however, the effect of repetition was examined via cued-recall questions in which children had to generate or retrieve the instantiation from the target occurrence. These two testing formats may have produced different effects because there are marked differences in the social and cognitive demands they place on the interviewee and the range of responses they permit (see Dent & Stephenson, 1979; Waterman, Blades & Spencer, 2000). In Connolly and Lindsay's study, the children may have been more likely to report the suggested instantiations because they merely had to acquiesce to the presence of the suggested detail. When the children did not immediately remember the specific detail from the target occurrence, which was more likely to be the case for the children in the repeated event condition than those in the single event condition (see Powell & Thomson, 1996), they may have agreed with the suggested detail in the yes/no question simply because the credible adult interviewer had presented a plausible alternative. With cued-recall questions, however, the child is required to reconstruct the target occurrence of the event, and retrieve the specific instantiation from that occurrence. In other words, the child is engaged in deeper processing than that which is required with yes/no questions (Waterman *et al.*, 2000). Deeper processing is more likely to lead to the retrieval of information that can be used to make the source judgement (Johnson *et al.*, 1993, Roberts, 2000). Further, with cued-recall questions, a range of responses can be made (e.g., internal intrusion errors, don't know responses, external intrusion errors) which reduces the likelihood of reporting the suggested detail.

The aim of the current study was to test the prediction that question type mediates suggestibility effects after repeated experience with an event. Children aged 5-6 years participated in one or four occurrences of a scripted event and were given a biasing interview about the event. Given that a major difference between Connolly and Lindsay's (2001) and Powell et al.'s (1999) study was the retention intervals used, the effects of question-type were examined at both a short <u>and</u> long intervals; 3-days and 3-weeks. Half of the items in the biasing interview were correctly described and half of the items were falsely described. The next day, the children were questioned about the single or final occurrence using either cued-recall or yes/no questions to examine whether there were differences in the uptake of false suggestions. We predicted that in response to yes/no questions, the children with repeated experience would accept the suggestions more often than the children who had a single experience of the event. However, this difference would be reduced or eliminated when cued-recall questions were asked, irrespective of the time interval, given that these questions require deeper processing and permit a range of possible responses.

Method
<u>Design</u>
The design employed was a 2 (Event: single vs. repeat) x 2 (Retention interval: 3 days vs. 3 weeks) x 2 (Test question format: cued-recall vs. yes/no) with all factors manipulated

between-subjects. The children participated in one or four occurrences of a scripted event and were given a biasing interview about the target (final or single) occurrence after either a 3-day or a 3-week delay. The next day, they were given the memory test (using either cued-recall or yes/no questions) about the target occurrence. Finally, children participated in a delayed source-monitoring test that was held three months after the target occurrence. See Figure 1 for an overview of the design and procedure.

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Insert Figure 1 here
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Participants

The participants were aged 5- to 6- years; the same age group as the participants in Powell *et al.*'s (1999; Experiment 2) work which adopted a similar suggestibility paradigm. Children were recruited through letters to parents that were distributed in four outer Melbourne metropolitan schools. The initial sample included 161 children, however 39 children were excluded because they did not attend at least one of the occurrences and/or interviews. The final participant pool consisted of 122 children who were assigned to the experimental conditions on a rotational basis with the constraint that each Event condition x Retention interval x Question format cell was equated for age (in months) and gender. A 2 (Question format: cued-recall, yes/no) t-test revealed that age in months did not differ across the conditions (Cued-recall: $\underline{M}$ = 5 years, 9 months, $\underline{SD}$ = 4.22 months, range = 61 to 83 months; Yes/no: $\underline{M}$ = 5 years, 8 months, $\underline{SD}$ = 4.18 months, range = 61 to 80 months), $\underline{t}(120)$ = 4.10, p <.05.

Materials

Each occurrence of the event consisted of 16 target items that were administered in the same temporal order. For the children who participated in the repeated event, all items were "variable" in that a new instantiation represented the item in each occurrence across the series. For example, the children received a sticker in each occurrence, however the theme of the sticker (e.g., dinosaur, flag) differed across the occurrences. In contrast, the children who received the single event were obviously only exposed to one instantiation. Table 1 presents the full set of target items and possible instantiations that were used to make up the event.

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Insert Table 1 here
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To control for item effects, the order and choice of instantiations that were selected to make up the event, the biasing interview, the memory interview, and the source-monitoring test varied across the event conditions. Five sets of items were created (A, B, C, D, and E) in which each item was represented by a different instantiation; these are presented in full in Table 1. One of the single groups (referred to as Group 1) experienced Set B and Set C was used as the suggested-false instantiations, and the other group (Group 2) experienced Set D and Set B was used as the suggested-false instantiations. For the repeated event condition, one group (Group 3) experienced Sets CDBE in that order, and Set A was used as the suggested-false instantiations; the other group (Group 4) experienced, in order, Sets ABDC and Set E was used for the suggested-false instantiations. The assignment of true/false instantiations that were suggested in the biasing interview were also counterbalanced across the event conditions so that each item in the event was equally often referred to as a true and false suggestion in the biasing interview. Refer to Powell *et al.* (1999) for a full rationale of this design. Details about counterbalancing for the memory and source-monitoring interviews are described in the 'procedure' section.

Procedure

The Event

The event was referred to as the "Deakin Activities" and was administered by a research assistant in the children's regular classroom. The four occurrences in the repeated condition were evenly spaced over two weeks and were always carried out at the same time of day. On the first (or single) occurrence, the confederate said "I've called it the Deakin Activities because some people at a place called Deakin University helped me to get all the things ready for what we are going to do today". The 16 items for each occurrence represented various kinds of information (e.g., verbalizations, actions, objects, persons), and they centered around several activities: Listening to a story, doing a puzzle, having a rest, receiving a surprise, and getting refreshed. While these are common childhood activities, the materials were developed solely for this research and hence the children would not have had contact with them before. During the final or single occurrence of the event (referred to as the "target occurrence") the children wore a badge which was later used to orient them to that occurrence. Teachers were instructed not to talk with the children about the activities outside the event or to inform them that they would later be interviewed about the event.

The Interviews

Subsequent to participating in the event, the children individually attended three separate interview sessions which were held in an isolated room at the school (not the room where the activities took place). In each session they were asked a standard list of questions that were conducted by one of two interviewers (neither of whom had administered the activities). The same person always conducted the first two sessions for any given child, and a different interviewer conducted the third session. First, a biasing interview was conducted which took approximately 10 minutes to complete and was held either three days or three weeks after the target occurrence. Second, a memory interview was conducted which took approximately 15 minutes to complete and was held one day after the first interview. Finally, a source monitoring interview was held three months after the target occurrence. This latter interview was designed to provide further information about the child's ability to identify the target instantiation in the absence of memorial demands or social coercion. In this way, it was possible to see whether the children had been genuinely misled or whether they had merely complied with the interviewer during the previous interviews. The individual interviews are now discussed in more detail.

Session 1: The biasing interview. The aim of the first session was for the interviewer to suggest instantiations that may have occurred in the event. After some brief introductory questions to determine that the children could remember the Deakin Activities and the badge, the interviewer said "I'm going to ask you some questions about the day you wore the badge to the Deakin Activities". A series of 16 questions were asked (in random order) whereby half of the questions suggested false instantiations and half of the questions suggested true instantiations in accordance with the counterbalancing procedure described earlier (see Materials section). For example, if a child received a sticker of a flag in the target occurrence, a corresponding suggested-false question might be "What color was the sticker of the dinosaur?" when a dinosaur sticker was not received in any occurrence of the event. If a child received a sticker of a flag in the target occurrence, a corresponding suggested-true question might be "What color was the sticker of the flag?". Presuppositional questions of this nature have successfully been used to show reliable suggestibility effects using a similar event (e.g., Powell *et al.,* 1999). Note that the children were reminded approximately every third question that they were supposed to be recalling the day they wore the badge to the Deakin Activities.

Session 2: The memory test. The aim of the second session was to examine the children's recall or recognition of the instantiations that were included in the target occurrence and thereby compare the effect of the biasing interview across the event conditions. The interviewer initially introduced herself to the child again and explained that she had lost all of the child's initial answers and so needed to ask some further questions about the day he/she wore the badge to the Deakin

Activities. Each child's recall of the occurrence was then probed using either cued-recall questions or yes/no questions (manipulated between subjects).

For children in the cued-recall condition, a series of 16 questions were asked; one question for each of the 16 target items included in the event. For each item, the child was required to recall the instantiation that was included in the target occurrence. Examples of these probes include: "What did you sit on, the day you wore the badge to the Deakin Activities?", "What was the Koala's name that day?", "What was the story about?"

For children in the yes/no condition, the 16 target items were probed in this session (as with the cued-recall questions), however the interviewer suggested instantiations of items and the children were merely required to indicate yes or no as to whether the instantiation was included in the target occurrence (e.g., "Did you sit on newspaper the day you wore the badge to the Deakin Activities?", "Was the Koala named Pop that day?", "Was the story about Superpuss?" To prevent item effects, it was necessary to probe both the true and false version of each item. To fully counterbalance the number and order of the suggestions, then, two sets of 16 questions were administered. The first set of questions for Groups 1 and 3 queried instantiations that were the same as those instantiations that were suggested in the biasing interview; half of these had been true suggestions and half of these had been falsely described in the biasing interview. Questions about these suggestions are hereafter referred to as repeated-true yes/no questions and repeated-false yes/no questions respectively. The second set of questions for Groups 1 and 3 queried instantiations that were different to those instantiations that were suggested in the biasing interview; half of these had been true suggestions and half of these had been false. Questions about these suggestions are hereafter referred to as novel-true yes/no questions and novel-false yes/no questions respectively to reflect that the instantiation suggested in the final interview had not been suggested in the biasing interview. For Groups 2 and 4, the order of the sets was reversed, therefore each item was represented by a question in each of these categories for the children in the repeat vs. single conditions. Note that immediately prior to these questions, all children were given two easy practice questions (using entirely new items) to determine whether they could say 'no' to the interviewer.

Session 3: The source-monitoring test.   The aim of the third test was to give children in both event conditions an identical test to see whether they had been genuinely misled. A source monitoring test that required children to choose between the target instantiation and a false (suggested or new) instantiation was used so that the memory demands of cued-recall questions and the social pressure demands of yes/no recognition questions were reduced. In addition, as children in the yes/no condition had heard four true and four false suggestions twice (whereas the suggestions had only been presented once for children in the cued-recall group) the source-monitoring test was administered three months after participation in the target incident so that memory had decayed to a similar extent for all children.

A different interviewer to the one who administered the biasing and recall interviews initially introduced herself to the child and explained that she needed to ask some further questions about the day he/she wore the badge to the Deakin Activities because the previous interviewer thought she might have asked the child about some things that did not happen at that school. The children were then asked 16 questions. For the 8 items that were suggested-false in the biasing interview the child was offered a choice between the target vs. biasing instantiation (referred to as the "biasing" trials). For example, "On the badge day an animal kept the Koala awake. It was a wombat or a kangaroo. Think about the badge day and tell me whether a wombat or a kangaroo kept the koala awake." For the remaining 8 items (all of which were suggested-true in the biasing interview), the child was offered a choice between the target vs. novel (completely new) instantiation (referred to as the "novel" trials).

Coding

Session 1: The biasing interview. To provide an indication of whether the child was misled by the false suggestions in the biasing interview, their responses to the biasing interview questions were coded according to whether the child openly denied that the instantiation suggested by the interviewer had occurred in the target incident. For example, if the interviewer asked "How did the lady tie her red cloak?" and the child said "I don't remember a red cloak" or "The cloak was blue that day" or " She didn't have a red cloak", the child was given credit for not going along with the suggestion.

Session 2: The memory test. Responses to the yes/no questions in the memory test session were coded as correct or incorrect. Responses to the cued-recall questions in the memory test session were assigned to one of five categories as follows: (i) Correct: when the instantiation (version of detail, e.g., dinosaur sticker, flag sticker) from the target occurrence was reported; (ii) False-suggestion: when the false instantiation that was suggested in the biasing interview was reported; (iii) External intrusion error: when an entirely new false instantiation that had not been suggested and had not occurred in the series was reported; (iv) Internal intrusion error: when a non-target instantiation in the series was reported (these errors can only be made by children in the repeated event conditions), (v) Other responses: when confusions of details from within the same occurrence, "don't know" responses, or responses where the child could not decide between various alternatives were provided. These 'other' responses were not analysed although, for completeness, their means are represented in the table.

Session 3: The source-monitoring test. Responses to the follow-up source monitoring questions were coded as correct or incorrect.

All the transcripts were first rated by a trained coder. A person who was not otherwise involved in the study scored 10% of the transcripts representing a cross-section from all the conditions. Inter-rater reliability was calculated by dividing the total number of agreements between the two coders by the total possible number of agreements. Reliability was 96% for the cued-recall coding and 100% for all other coding.

Results

The results section is split into three parts to show the children's responses in each interview. First, we present preliminary analyses to demonstrate that children in the cued-recall and yes/no conditions were equally suggestible at the Biasing Interview. The responses to the Memory Interview questions are then presented, first, from children in the cued-recall condition and, second, from children in the yes/no group. We then directly compare responses from children in these two conditions. Finally, we present the responses of children to the 3-month follow-up source monitoring test.

The Biasing Interview

To ensure that any effects of the question format variable in the Memory Interview were not due to initial differences in suggestibility between the children in the two conditions, the responses to the Biasing Interview questions that contained false suggestions were coded for the number of times (out of 8) that the children did not refute the suggestion. The data in each Experience x Retention Interval cell were then entered into a 2 (Test question format: cued-recall, yes/no) t-test, but there were no significant differences between the initial suggestibility scores of children in the cued-recall and yes/no groups, $ts < 1.65$, $ps > .10$.

The Memory Interview

Responses to the cued-recall questions.

Responses to the 16 cued-recall questions were coded as correct, false-suggestion, external intrusion error, internal intrusion error, or "other", as described above, and the means are displayed in Table 2. The total number of correct responses were entered into a 2 (Event: single vs. repeat) x

2 (Retention interval: 3 days vs. 3 weeks) x 2 (Suggestion in biasing interview: true vs. false) analysis of variance (ANOVA) with the last factor within subjects. There were main effects of event, $F(1, 58) = 48.68$, $p < .0001$, retention interval, $F(1, 58) = 20.83$, $p < .0001$, and suggestion, $F(1, 58) = 138.99$, $p < .0001$. Children who had experienced the event once ($M = 10.41$, $SD = 2.60$) gave a greater number of correct answers than those with repeated experience ($M = 6.03$, $SD = 3.08$), and all children gave more correct answers at the 3-day ($M = 9.71$, $SD = 3.10$) than the 3-week delay ($M = 6.87$, $SD = 3.50$). In addition, responses to questions about the true suggestions ($M = 5.48$, $SD = 1.94$) were more accurate than those about false suggestions ($M = 2.81$, $SD = 2.13$). The effects of event and suggestion were qualified by an interaction between them, $F(1, 58) = 10.22$, $p < .01$, because the difference between correct answers to the true and false suggestions was especially strong for children who had experienced the event repeatedly (Single: $Ms = 6.19$, 4.22 and $SDs = 1.55$, 1.60; Repeated: $Ms = 4.73$, 1.30 and $SDs = 2.05$, 1.49, for the true and false suggestions, respectively).

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Insert table 2 here

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The false-suggested responses were entered into a 2 (Event) x 2 (Retention interval) ANOVA. The within-subjects variable of suggestion was not included because the false-suggested responses reflected answers to false items only. Importantly, the amount of experience with the event had no effect on the number of times the children reported the false-suggested version of the detail, $F < 1$. There was also no effect of retention interval although a trend, $F(1, 61) = 3.05$, $p = .09$, indicated that more false-suggested responses were given at the 3-week ($M = 1.68$, $SD = 1.56$) than the 3-day delay ($M = 1.06$, $SD = 1.09$).

The total number of external intrusion errors were entered into a 2 (Event) x 2 (Retention interval) x 2 (Suggestion) ANOVA with the last factor within subjects. There was a main effect of event, $F(1, 61) = 7.83$, $p < .01$, because children in the single experience condition reported more external intrusions ($M = 1.75$, $SD = 1.64$) than did those with repeated experience ($M = 0.63$, $SD = 1.13$). The number of external intrusions reported for the true and false items varied depending on whether the children were interviewed three days or three weeks after the biasing interview, $F(1, 58) = 4.34$, $p < .05$. Specifically, at the 3-day delay, children reported less external intrusions for the true items ($M = 0.58$, $SD = 0.98$) and more external intrusions for the false items ($M = 0.63$, $SD = 1.03$) than did those who were interviewed at the 3-week delay ($Ms = 0.74$, 0.48 and $SDs = 1.21$, 0.81 for the true and false suggestions, respectively).

The number of internal intrusion errors were entered into a 2 (Retention interval) x 2 (Suggestion) ANOVA. The between-subjects event variable was not included because internal intrusion errors were only possible for children who had repeated experience. There was an effect of suggestion, $F(1, 28) = 13.95$, $p = .001$, because children responded to more of the questions about the false items with an internal intrusion ($M = 3.27$, $SD = 2.03$) than they did in response to the true items ($M = 1.81$, $SD = 1.42$). There was no effect of event.

Summary. The responses to the cued-recall questions showed that children who had experienced the event once accurately answered more questions than children with repeated experience. The children in the single event group, however, also intruded more details external to the event into their reports than did those with repeated experience. The timing of the biasing interview affected children's accuracy because their responses were more accurate when misled shortly after than a while after the target occurrence. As expected, the amount of experience with the event did not mediate the number of times that false suggestions from the biasing interview were reported, but overall, responses to questions about falsely suggested items were more inaccurate than those about accurately suggested items.

<u>Responses to the yes/no questions.</u>

Note that all the children initially passed the two practice questions, which indicated that they could say 'no' to the interviewer. In relation to the test items, there were four types of yes/no questions (novel-false, novel-true, repeated-false, and repeated-true). Responses to these questions were coded as correct or incorrect (see Table 3 for means). Proportional scores to the correct responses were calculated by dividing the total number of correct responses to each type of question by the total number of those questions asked[1] and the means are presented in Table 3.

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Insert table 3 here
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The correct proportional scores were then entered into a 2 (Event: single, repeat) x 2 (Retention interval: 3-days, 3-weeks) x 2 (Suggestion in Biasing Interview: true, false) x 2 (Presentation: novel, repeat) ANOVA, and the suggestion and presentation variables were within-subjects. There were main effects of event, $F(1, 56) = 9.74$, $p < .01$, and delay, $F(1, 56) = 16.71$, $p < .001$. Children in the single condition ($M = .77$, $SD = 0.11$) gave more correct responses than those with repeated experience ($M = .68$, $SD = 0.14$), and children interviewed after three days ($M = .78$, $SD = 0.13$) were more accurate than those interviewed after three weeks, ($M = .66$, $SD = 0.11$). There were also main effects of suggestion, $F(1, 56) = 3.95$, $p = .05$, and presentation, $F(1, 56) = 73.30$, $p < .001$, and an interaction between them, $F(1, 56) = 59.92$, $p < .001$, which showed that the effects of repeating a suggestion differed depending on whether it was a true or a false description. Specifically, children accurately answered more of the repeat-true than novel-true questions (Novel-true: $M = .85$, $SD = 0.14$; Repeat-true: $M = .93$, $SD = 0.10$), but answered fewer of the repeat-false than novel-false questions accurately (Novel-false: $M = .63$, $SD = 0.30$; Repeat-false: $M = .50$, $SD = 0.29$).

Presentation also interacted with event, $F(1, 56) = 4.16$, $p = .046$, and delay, $F(1, 56) = 11.12$, $p < .01$, and there was a 3-way interaction between event, delay, and presentation, $F(1, 56) = 4.61$, $p = .04$. As there was also a 3-way Event x Suggestion x Presentation interaction, $F(1, 56) = 7.83$, $p < .01$, planned t-tests were carried out to compare the effects of event for novel-true, novel-false, repeat-true, and repeat-false questions at each of the delays (see Table 3 for means). These analyses revealed that children in the single event condition were more accurate when answering the novel-false and repeat-false questions (i.e., they were more resistant to false suggestions) than were the children in the repeat event condition but, interestingly, this difference was significant only at the 3-week delay, $t_{novel-false}(27) = 3.87$, $p < .001$, $t_{repeat-false}(27) = 2.71$, $p < .01$ (see Table 3). Although children in the single event condition were more accurate than those in the repeat event condition when answering the repeat-true questions at the 3-day delay, $t(29) = 2.01$, $p = .05$, this difference was not present in responses given at the 3-week delay $t(27) = 1.07$, $p > .10$. Finally, children in the repeat event condition answered more of the novel-true questions accurately at the 3-week delay than did children in the single event condition, $t(27) = -2.24$, $p = .03$.

<u>Summary.</u> Like responses to the cued-recall questions, more yes/no recognition questions were answered accurately by children with a single experience of the event than those with repeated experience and responses elicited at the short (3-day) delay were more accurate than those at the 3-week delay. Unlike responses to the cued-recall questions, however, children with a single experience were more accurate than those with repeated experience when questioned about items on which they had heard false suggestions, although this was only evident at the longer delay. Finally, repeating the suggestion from the Biasing Interview at the Memory Interview increased accuracy for items that had been accurately described at the Biasing Interview, but decreased accuracy for falsely-described items.

Comparing responses across question format.

To directly compare whether question format (cued-recall vs. yes/no recognition) affected suggestibility, proportional scores were calculated. For responses to the cued-recall questions, the 'false-suggested' scores (i.e., when children reported the false, suggested version of the detail) were re-calculated as a proportion by dividing them by the number of features that were inaccurately described in the biasing interview (i.e., eight). Note that these could only have been answers to questions about items that had been falsely described in the Biasing Interview. There were three types of yes/no questions that probed an item that had been inaccurately described at some point: Novel-false (false suggestion presented at the Memory Interview), novel-true (true suggestion at the Memory Interview, false suggestion at the Biasing Interview), and repeat-false (false suggestions during both the Biasing and Memory Interviews). The inverse of the proportional correct score for each of these types of questions was computed and, thus, a higher score indicates a greater degree of suggestibility.

The incorrect proportional scores for the cued-recall and novel-false yes/no recognition questions were compared using a 2 (Event: single, repeat) x 2 (Retention interval: 3-day, 3-week) x 2 (Question format: cued-recall, yes/no) ANOVA. There were effects of event, $F(1, 121) = 7.80$, $p < .01$, delay, $F(1, 121) = 17.94$, $p < .001$, and question format, $F(1, 121) = 27.08$, $p < .001$. Event and question format interacted, $F(1, 121) = 6.80$, $p = .01$, as did delay and question format, $F(1, 121) = 5.12$, $p < .03$, though both interactions were subsumed by a 3-way interaction between event, delay, and question format, $F(1, 121) = 4.89$, $p < .03$. To explore the interactions, a 2 (Event) x 2 (Retention interval) ANOVA was carried out separately for the responses to the cued-recall and novel-false yes/no recognition questions. There were no effects of event nor delay on the cued-recall responses, but there were effects of event, $F(1, 59) = 10.52$, $p < .01$, and delay, $F(1, 56)$, and an Event x Delay interaction, $F(1, 59) = 3.99$, $p = .05$, on the yes/no responses. Follow-up analyses showed that children in the repeat condition who were questioned with yes/no probes had higher suggestibility scores than those in the single event condition at the 3-week but not the 3-day delay.

The incorrect proportional scores for the cued-recall and repeat-false yes/no recognition questions were then compared using a 2 (Event: single, repeat) x 2 (Retention interval: 3-day, 3-week) x 2 (Question format: cued-recall, yes/no) ANOVA. Although the effect of event only approached significance, $F(1, 121) = 3.04$, $p = .08$, there were effects of delay, $F(1, 121) = 15.87$, $p < .001$, and question format, $F(1, 121) = 68.56$, $p < .001$. Delay and question format interacted, $F(1, 121) = 4.39$, $p < .04$, and there was an Event x Delay x Question format interaction, $F(1, 121) = 3.81$, $p = .05$. Follow-up 2 (Event) x 2 (Retention interval) ANOVAs revealed that children in the repeat event condition had higher suggestibility scores on the repeat-false questions than did children with a single experience of the event, though this difference was present only at the 3-week delay.

Finally, the incorrect proportional scores for the cued-recall and novel-true yes/no recognition questions were compared using a 2 (Event: single, repeat) x 2 (Retention interval: 3-day, 3-week) x 2 (Question format: cued-recall, yes/no) ANOVA. There were no main effects though there was an Event x Delay interaction, $F(1, 121) = 4.56$, $p < .04$, because children in the single event condition who were questioned at 3-weeks were more suggestible than their counterparts who were interviewed after three days. There was no effect of delay on responses from children who had had repeated experience.

Summary. Although children with repeated experience of the event were more suggestible than others who had a single experience of the event, the detrimental effect of experience was only observed in connection with the other variables. Specifically, the effect of experience was only evident when children were questioned with yes/no rather than cued-recall questions, when they were interviewed 3-weeks rather than 3-days after participating in the event, and when the false

suggestion was explicitly mentioned at the Memory Interview (i.e., the novel-false and repeat-false questions).

The source-monitoring interview

Children were required to choose between the target and biasing instantiation (BIASING trials) or between the target and a new, false instantiation (novel trials). The number of correct responses (i.e., choosing the target instantiation) from these 16 forced-choice questions was entered into a 2 (Event: single vs. repeat) x 2 (Retention interval: 3 days vs. 3 weeks) x 2 (Question format: yes/no, cued-recall) x 2 (Trial: novel, biasing) ANOVA with the last factor manipulated within subjects. There were main effects for event, $\underline{F}(1, 111) = 20.09$, $\underline{p} < .0001$, and trial, $\underline{F}(1, 111) = 67.53$, $\underline{p} < .0001$. Children in the single-event conditions selected the target instantiation more often ($\underline{M} = 13.67$ out of 16, $\underline{SD} = 1.58$) than those in the repeated-event conditions ($\underline{M} = 12.16$, $\underline{SD} = 2.12$), and children answered more of the questions correctly on the novel trials ($\underline{M} = 7.10$ out of 8, $\underline{SD} = 1.14$) than the biasing trials ($\underline{M} = 5.83$, $\underline{SD} = 1.47$). Further, these effects were modified by an interaction between them; the difference between the novel and biasing trials was greater for the children in the repeat condition than those in the single condition, showing high errors on biasing trials by children who had repeated experience with the event.

Discussion

In this study, we examined whether the effect of repeated experience on children's suggestibility differs depending on whether memory is probed with cued-recall or yes/no questions. In particular, we predicted that the effect of repetition on suggestibility would be greater in response to yes/no questions compared to cued-recall questions and this prediction was supported. With regards to the yes/no questions, children in the repeated-event groups were more likely to acquiesce to false suggestions than children in the single-event groups. The detrimental effect of repeated experience on suggestibility was reduced, however, when the children were asked cued-recall questions. In fact, the amount of experience was found to have no effect on the number of times the children reported the false-suggested version of the detail in response to cued-recall questions. While these responses are consistent with previous studies (e.g., Powell *et al.,* 1999; Connolly & Lindsay, 2001), this is the first study to directly compare the effect of both question-types within a single experimental design.

The lack of any effect of event-type on suggestibility for the cued-recall questions does not appear to be due to the fact that suggestibility was near floor for these questions. While the actual number of false-suggested instantiations that were reported in response to the cued-recall questions was low, none of the children were immune to the interviewer's suggestions. Accuracy was generally higher about questions that probed true suggestions than false suggestions irrespective of the event group or question-type. Further, in the biasing interview the children who were later given the cued-recall questions were no more or less likely to resist the false suggestions than the children who were later given the yes/no questions. Taken together, these patterns imply that the suggestibility paradigm was working (Ceci & Bruck, 1993).

The findings involving the cued-recall questions should also not be taken to mean that the children who experienced the repeated event were more accurate in remembering the particular occurrence of the event. Consistent with previous studies on children's memory for repeated events (Farrar & Goodman, 1990; Hudson, 1990; Powell and Thomson, 1996), repetition led to a decline in the children's ability to remember which instantiations were included in the target occurrence. However, the majority of errors that children made after repeated experience were intrusions of details from other occurrences of the event. These children rarely reported details that did not occur in the event irrespective of whether the false detail was suggested by the interviewer. In fact, external intrusion errors (entirely new false details that had not been suggested and had not occurred in the series) were less likely to be reported by the children who experienced the repeated event compared to the single event. It seems then, that under cued-recall conditions, the ability of

children who experienced a repeated event to monitor the relative position of experienced details from within the series of occurrences is a much more critical or powerful problem than distinguishing completely false information from information that occurred in the event.

So why was the detrimental effect of repeated experience on children's suggestibility eliminated when the children were asked to generate a response in their own words? The previous literature offers little in the way of reconciling these results because there has been little empirical investigation to date of the differential outcomes associated with yes/no versus cued-recall questions. Further, current theories of memory merely state that interpolation of false information is more likely to occur when memory is weaker. The children's ability to remember the particular occurrence from the series was poorer irrespective of which type of question was asked. We propose that the different patterns of results relate to the different nature of the tasks. In a cued-recall task, the children must search their memory to generate the correct response and they are free to draw on a range of possible responses (internal intrusions and 'don't know' responses included). In contrast, with the recognition questions, the interviewer generates the possible answer and the range of responses is limited (i.e., the child can either respond 'yes' or 'no'). There are two possible reasons why the nature of these questions may have produced the different results.

First, the results involving the cued-recall questions may be explained by probability factors. Compared to the single event groups, the children who experienced the repeated event had a relatively large pool of knowledge about the event to draw from (i.e., for each item probed they had experienced three non-target instantiations as well as one target instantiation). The larger the array of familiar items available in memory, the lower the probability that the child will choose the misinformation over an experienced detail. In cases where there is a relatively large pool of familiar items available in memory, children who experience a repeated event may be no more likely to select the suggested detail compared to children who experience a single event, even though the suggestion may seem more plausible to them (Powell et al., 1999).

Second, the results could be accounted for by differences in the relative strength or accessibility of real versus suggested instantiations for the two event groups. Although repetition can lead to strong memory traces for fixed, invariant details (see Powell et al., 1999), it may also contribute to the strengthening of traces for variable items. Each time new instantiations of items were experienced in the repeated event, previous instantiations may have been retrieved, thereby creating stronger memory traces for individual instantiations that occurred in the event (Marche, 1999; Keeney et al., 1967; Roberts et al., 1999). Indeed, we observed that the children who participated in the repeated occurrences openly discussed and contrasted the previous instantiations each time a new instantiation was presented in the event. Further, as children experienced the event repeatedly, they may have begun to form a general representation of the event that helped them to anticipate a routine (Farrar & Goodman, 1990). The cognitive operations associated with children's expectation of a familiar routine may have improved their memory of the real (experienced) instantiations by focusing their attention on the aspects of the event that varied (Foley et al., 1991). While the act of recalling an occurrence after repeated experience is a more challenging task than remembering a single event, the benefit of having many well-encoded instantiations may have compensated in part for the detrimental effect of interviewer suggestions on the children's memory. In contrast, judgements about recognition questions would have been based merely on plausibility or a "quick-match" strategy, especially when retrieval of the target occurrence was difficult (e.g., when the event was experienced repeatedly and/or when memory was tested after a longer delay). Because retrieval of the occurrence would have been more difficult for the children who experienced the repeated event, they would have needed to rely more often on the interviewer's suggestions provided in the yes/no questions than the children in the single-event condition, rather than spend the time and effort retrieving information. This would

explain the strong bias to say 'yes' that seemed to be operating in the repeat-event groups, especially at the 3-week delay.

It is important to note, however, that the children who experienced the repeated event and participated in the yes/no interview were not simply <u>complying</u> with the interviewer more than those with a single experience. We tested this in the follow-up test by forcing the children to choose between the suggested and target instantiations. It was found that children with a single experience correctly chose the target item more than those with repeated experience regardless of the recognition question format (yes/no or forced choice questions). Furthermore, choosing between the target instantiation and the suggested instantiation (which requires source monitoring) was found to be more difficult than choosing between target and novel instantiations (which requires recognition only), particularly for the children who had repeatedly experienced the event. These data suggest that children in the repeated-event condition were more <u>confused</u> by the interviewer's false suggestions than the children in the single-event condition. This could be because repeated experience increases the likelihood that false suggestions will be incorporated into the children's memory of the event, or alternatively, perhaps it merely reduces the accessibility of experienced instantiations (Zaragoza *et al.,* 1992).

When considering the interactions between event group and retention interval for the cued recall questions that were inaccurately described in the biasing interview versus the false yes/no recognition questions, the data offers partial support for the above interpretations. We know that children's ability to recall an occurrence of a repeated event declines at a much faster rate than children's recall of a single occurrence (due to interference effects; ssee Powell & Thomson, 1997a). As the children's memory of the particular occurrence becomes less clear, the <u>plausibility</u> of the interviewer's false-suggestions would increase and so too would the child's willingness to conform or comply with the interviewer's suggestion. This is consistent with the data for the yes/no questions but not the cued-recall questions. For the yes/no questions, the errors increased over time at a faster rate for the repeated-event groups. However, after probing with the cued-recall questions, the increase in suggestibility over time was relatively small and equal for both event groups. One might expect that, for the children who experienced the repeated event in particular, the probability of reporting the false-suggested information would have increased over time as their pool of knowledge about the event declined. However, the delays used in this study could be considered relatively short. As Powell and Thomson (1997a) showed, the children would have still remembered most of the possible instantiations for each item at the three-week delay. In fact, in one study which used a similar event as that used in this study, a large proportion of instantiations were still remembered by children at a twelve week delay (Powell & Thomson, 1997b). Further research could explore the generalisability of these findings by including much longer retention intervals than that used in this study.

The results of this study are important because they show that inconsistencies in the effect of repeated experience in previous studies may be partly accounted for by different questioning procedures (i.e., whether memory was elicited with cued-recall or recognition questions). For instance, Powell et al (1999) tested children's memory with cued-recall questions and reported that repeated experience had no detrimental effect on children's suggestibility whereas Connolly and Lindsay (2001) used yes/no questions and found that suggestibility was greater after a repeated event compared to a single event. Until researchers have fully explored the boundaries in which children are suggestible after repeated experience with an event, they need to be cautious not to assume that the findings arising from any particular experimental paradigm are generalisable. Further, researchers need to be cautious not to assume that theories of memory and suggestibility that have arisen from work involving children's memory for single events generalise to repeated-event groups. The distinct pattern of errors found in this research suggests that theories of

suggestibility may need to take new directions for predicting the suggestibility of children who have experienced a repeated event.

In light of these findings, it is important that lawyers and investigative interviewers consider the difficulties children have in recalling an occurrence of a repeated event, and consider how they can minimise the likelihood that false information will be incorporated into the child's account. The results of this study are considered to be generalisable at least in part to forensic settings because many children who give evidence are required to remember specific details about an occurrence of a repeated event with some degree of precision. Two major implications can be drawn from these findings. First, yes/no or forced-choice questions should be avoided in investigative interviews especially when it is suspected that the child has experienced a multiple offence. The adoption of non-leading cued-recall questions, and more open-ended questions, is likely to reduce the child's susceptibility to interviewer suggestion, especially when the interview is taking place after a delay in time. Second, while after long delays a child may be able to recall many details about the offence per se in response to cued-recall questions, the child's ability to identify features specific to the occurrence(s) in question is likely to be diminished. In other words, the timing of the interview is likely to be an important factor in determining the number and accuracy of specific details recalled by the child about one of the occurrences. Ideally evidence about an occurrence of a repeated event should be obtained as soon as practicable after a disclosure is made. With modern technology and the capacity to videotape children's evidence-in-chief (see Davies *et al.,* 1995), there are fewer impediments to obtaining evidence shortly after a disclosure is made.

References

Ceci SJ, Bruck M. 1993. Suggestibility of the child witness: A historical review and synthesis. *Psychological Bulletin* **113**: 403-439.

Connolly DA, Lindsay DS. (2001). The influence of suggestions on children's reports of a unique experience versus reporting of a repeated experience. *Applied Cognitive Psychology, 15(2), 205-224.*

Davies G, Wilson C, Mitchell R, Milsom J. 1995. *Videotaping children's evidence: An evaluation,* Home Office: London.

Dent HR, Stephenson GM. 1979. An experimental study of the effectiveness of different techniques of questioning child witnesses. *British Journal of Social and Clinical Psychology* **18**: 41-51.

Marche TA. 1999. Memory strength affects reporting of misinformation. *Journal of Experimental Child Psychology* **73**: 45-71.

Farrar MJ, Goodman GS. 1992. Developmental changes in event memory. *Child Development* **63**: 173-187.

Foley MA, Durso FT, Wilder A, Friedman, R. 1991. Developmental comparisons of explicit versus implicit imagery and reality monitoring. *Journal of Experimental Child Psychology* **52**: 1-13.

Friedman WJ. 1991. The development of children's memory for the time of past events. *Child Development* **62**: 139-155.

Holliday RE, Douglas KM, Hayes BK. 1999. Children's eyewitness suggestibility: Memory trace strength revisited. *Cognitive Development* **14**: 443-462.

Home Office and Department of Health (1992). *Memorandum of good practice on video recorded interviews with child witnesses for criminal proceedings*, London: HMSO.

Hudson JA. 1990. Constructive processing in children's event memory. *Developmental Psychology* **26**: 180-187.

Hudson JA, Fivush R, Kuebli J. 1992. Scripts and episodes: The development of event memory. *Applied Cognitive Psychology* **6**: 483-505.

Johnson MK, Hashtroudi S, Lindsay DS. 1993. Source monitoring. *Psychological Bulletin* **114**: 3-28.

Keeney TJ, Canizzo SR, Flavell JH. 1967. Spontaneous and induced verbal rehearsal in a recall task. *Child Development* **38**: 953-966.

Lamb ME, Hershkowitz I, Sternberg KJ, Esplin PW, Hovav M, Manor T, Yudilevitch L. 1996. Effects of investigative utterance types on Israeli children's responses. *International Journal of Behavioral Development* **19**: 627-637.

Lindsay DS, Johnson MK, Kwon P. 1991. Developmental changes in memory source monitoring. *Journal of Experimental Child Psychology* **52**: 297-318.

Pezdek K, Roe C. 1995. The effect of memory trace strength on suggestibility. *Journal of Experimental Child Psychology* **60**: 116-128.

Powell MB, Roberts KP, Ceci SJ, Hembrooke HH. 1999. The effects of repeated experience on children's suggestibility. *Developmental Psychology* **35**: 1462-1477.

Powell MB, Thomson DM. 1996. Children's memory of an occurrence of a repeated event: Effects of age, repetition, and retention interval across three question types. *Child Development* **67**: 1988-2004.

Powell, MB, Thomson DM. 1997a. Contrasting memory for temporal-source and memory for content in children's discrimination of repeated events. *Applied Cognitive Psychology* **11**: 339-360.

Powell MB, Thomson DM. 1997b. The effect of an intervening interview on children's ability to remember an occurrence of a repeated event. *Legal and Criminological Psychology* **2**: 247-262.

Roberts KP. 2000. An overview of theory and research on children's source monitoring. In *Children's Source Monitoring*, Roberts KP and Blades M (eds.) Lawrence Erlbaum: New Jersey.11-58.

Roberts KP, Blades M. 1999. Children's memory and source monitoring for real-life and television events. *Journal of Applied Developmental Psychology* **20**: 575-596.

Roberts KP, Lamb ME, Sternberg KJ. 1999. Effects of the timing of postevent information on preschoolers' memories of an event. *Applied Cognitive Psychology* **13**: 541-560.

S. vs. R. 1989, 89 A.L.R., 321.

Waterman AH, Blades M, Spencer C. 2000. Do children try to answer nonsensical questions? *British Journal of Developmental Psychology* **18:** 211-225.

Warren AR, Woodall CE, Hunt JS, Perry NW. 1996. "It sounds good in theory, but ....": Do investigative interviewers follow guidelines based on memory research? *Child Maltreatment* **1**: 231-245.

Zaragoza MS, Dahlgren D, Muench J. 1992. The role of memory impairment in children's suggestibility. In *Development of Long-term Retention*, Howe ML, Brainerd CJ and Reyna VF (eds.) Springer-Verlag: New York; 184-216.

Table 1

Entire Set of Target Items and Instantiations

No.	ITEM	INSTANTIATION				
		A	B	C	D	E
1.	Children sit on X	cardboard	garbage bag	rubber mat	white sheet	newspaper
2.	Cloak of leader	red	yellow	white	blue	green
3.	Koala's name	Boo	Kip	Pop	Stan	Jo
4.	Noisy animal	kangaroo	goanna	kookaburra	dingo	wombat
5.	Warm-up activity	run	wiggle fingers	touch toes	jump	dance
6.	Source of story	cupboard	leader wrote	posted	library	present under tree
7.	Content of story	police	sea creature	Easter	Supercat	elephant
8.	Child who holds up pictures	Child A	Child B	Child C	Child D	Child E
9.	Utensil to note who child is	pencil	crayon	chalk	texter	ballpoint pen
10.	Puzzle	car with flat tyre	eating cakes	balancing balls	juggling	walking on tightrope
11.	Music/scene for resting	beach	kites	birds	rain	park
12.	Part of body is relaxed	legs	nose	stomach	arms	neck
13.	Method of getting refreshed	baby wipe	fan (paper plate)	hand-cream	face spray	cool drink
14.	Theme of sticker	rocket	dinosaur	apple	flag	ball
15.	Container with stickers	pencil case	purse	envelope	jar	basket
16.	Next stop	to movie	walking a dog	visiting friend in hospital	birthday party	going on holiday

Table 2
Accuracy of Responses to the Cued-Recall Questions as a function of how they were described in the Biasing Interview.

Condition	Type of instantiation reported by the child				
	Correct	False suggestion	External intrusion	Internal intrusion	Other
			True items		
Single event					
3 day del (N=16)	6.69 (1.35)	--	0.50 (0.82)	--	0.75 (0.93)
3 wk del (N=16)	5.69 (1.62)	--	1.19 (1.52)	--	1.13 (0.89)
Repeated event					
3 day del (N=15)	5.87 (1.41)	--	0.33 (0.49)	1.33 (1.18)	0.47 (0.83)
3 wk del (N=15)	3.60 (1.99)	--	0.27 (0.46)	2.40 (1.45)	1.73 (2.05)
			False items		
Single event					
3 day del (N=16)	4.81 (1.60)	0.88 (0.96)	1.06 (1.24)	--	1.31 (1.08)
3 wk del (N=16)	3.63 (1.41)	1.81 (1.56)	0.75 (1.00)	--	1.81 (1.17)
Repeated event					
3 day del (N=15)	1.93 (1.79)	1.27 (1.22)	0.47 (1.13)	2.93 (1.94)	1.40 (1.50)
3 wk del (N=15)	0.67 (0.72)	1.53 (1.60)	0.20 (0.41)	3.60 (2.13)	2.00 (2.73)

Note. Standard deviations appear in parentheses. Internal intrusions were not possible for children with a single experience of the event.

Table 3
Proportion of Accurate Responses to the Yes/No Recognition Questions as a function of how they were described in the Biasing and Memory Interviews.

Condition	Type of Question			
	Novel-False	Novel-True	Repeated-False	Repeated- True
Single event				
3 day del (N=16)	.79 (.16)	.87 (.15)	.63 (.25)	.95 (.06)
3 wk del (N=14)	.67 (.16)	.79 (.12)	.50 (.22)	.96 (.06)
Repeated event				
3 day del (N=15)	.71 (.33)	.82 (.15)	.61 (.30)	.89 (.10)
3 wk del (N=15)	.34 (.28)	.90 (.14)	.26 (.25)	.91 (.15)

Note. Standard deviations appear in parentheses. Question formats: "Novel-false" = probed an instantiation that was not in the event and the target instantiation had been suggested in the biasing interview; "novel-true" = probed an instantiation from the target occurrence and a false instantiation had been offered in the biasing interview; "repeated-false" = probed an instantiation that was not in the event and the same instantiation had been suggested in the biasing interview; "repeated-true" = probed an instantiation from the target occurrence and the same instantiation was suggested in the biasing interview.

Endnotes

1. Proportional scores were calculated because for the yes/no questions for Groups 2 and 4, the repeated-false instantiation associated with Item 8 was accidentally reported by the interviewer instead of the novel-false suggestion.