

A Case Study of Witness Consistency and Memory Recovery Across Multiple Investigative Interviews

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Summary: Access to audio recordings of five interviews (Interviews 2–6), and to the interviewer's contemporaneous notes during an initial unrecorded interview, made it possible to assess consistency across repeated attempts by a 9-year-old to describe her older sister's abduction from their shared bedroom. Information provided in each of the interviews was systematically analysed to determine whether each unit of information was new, consistent (repeated) or contradictory in relation to earlier reported information and whether any informative detail provided in the witness' initial interview was subsequently omitted. In addition, the witness' accounts were compared with details provided by the victim upon her rescue. This case analysis is particularly informative in light of widespread professional concerns about the effects of repeated interviewing on the quality and accuracy of children's accounts of experienced events. Copyright © 2011 John Wiley & Sons, Ltd.

The goal of this case study was to examine the consistency of a 9-year-old's repeated accounts of her older sister's abduction from their shared bedroom. The six forensic interviews conducted over a 4-month period (128 days) eventually led to identification of the perpetrator and rescue of the victim. Access to audio recordings of five interviews (Interviews 2–6) and to the interviewer's contemporaneous notes regarding the initial interview together provided a unique opportunity to assess consistency across repeated accounts of a traumatic experience. Five of the six interviews were conducted by either of two detectives extensively trained to conduct forensic interviews of child witnesses, and one was conducted by a hypnotist with one of the police interviewers present. The products of the repeated efforts at memory retrieval were systematically compared to determine whether each unit of information recounted in Interviews 2 to 6 was new, consistent (repeated) or contradictory in relation to earlier reported information and whether any informative detail provided by the witness in her initial interview was omitted from her subsequent accounts. Special attention was paid to investigative leads provided by the witness, including any references to characteristics of the kidnapper that might facilitate identification.

This case analysis is particularly informative in light of widespread professional concerns about the effects of repeated interviewing on the quality and accuracy of children's accounts of experienced events (e.g. Bell, 2001; Cross, Finkelhor, & Ormrod, 2005; Heck, 1999; Jones, Cross, Walsh, & Simone, 2005; Lashley, 2005; Sedlak et al., 2006; Tjaden & Anhalt, 1994; Whitcomb, 1992), which have led the authors of best practice guidelines to counsel against repeated interviewing (e.g. CornerHouse, Minneapolis, MN, 2008; Home Office, 1992, 2007; Law Commission, 1997; Scottish Executive, 2003, 2007). These admonitions have

been reinforced by court decisions voicing scepticism about testimony obtained through repeated interviewing (e.g. Commonwealth v. Baran, 2009; Kennedy v. Louisiana, 2008, State v. Bobadilla, 2006).

Although, as La Rooy, Lamb, and Pipe (2009) showed, the empirical evidence is considerably less clear-cut than the strength of these recommendations would suggest, concerns that repeated retrieval might distress abuse victims has impeded further research on repeated interviewing in forensic as opposed to analogue contexts. One exception is a recent study by La Rooy, Katz, Malloy, and Lamb (2010) documenting a number of circumstances in which repeated interviewing of child victims yielded new and crucially important details, thus providing unique insight into the benefits and risks associated with repeated interviews of young witnesses in forensic contexts. None of the cases sampled, however, involved as many interviews over as long a period of time as the present analyses do.

RESEARCH ON REPEATED INTERVIEWS

An extensive experimental literature clearly demonstrates that repeated tests of 'to-be-remembered' material (e.g. words, pictures, poetry) result in the recall of new, previously unrecalled information, a phenomenon known as reminiscence (Ballard, 1913; Brown, 1923; Brainerd, Reyna, Howe, & Kingma, 1990; Erdelyi, 1996, 2010; Payne, 1987). Recall from memory is usually incomplete, with new details recalled in later retrievals. Brown (1923), for example, asked 194 psychology students to name as many states as they could remember. The average was 36 states (there were then 48), but a second retrieval 30 minutes later allowed them to recall five additional states on average, clearly demonstrating differences in recall across the two memory tests. Erdelyi (1996) and Brainerd, Reyna, Howe, and Kingma (1990) explained this phenomenon by suggesting that, over repeated recall tests, more efficient recall triggered by more effective retrieval cues facilitates

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reminiscence. Across repeated recall attempts, increasing number of details are brought into consciousness, serving as cues for the recall of additional details. According to the *principle of encoding specificity*, the greater the similarity between features of encoding and retrieval, the better and more complete the recall is. In repeated memory testing, the features of encoding are gradually reinstated across the repeated recall attempts as more information about the original memory is recalled (Tulving, 1983), leading in turn to the reminiscence of additional information.

The effects of repeated interviewing have typically been studied in experiments in which researchers compared objectively recorded details about to-be-remembered events—including real-life experienced or witnessed stressful events (e.g. medical examinations, school violence, respectively) or staged interactive or witnessed events (e.g. live, video, films; Bluck, Levine, & Lauthere, 1999; Dent & Stephenson, 1979; Dunning & Stern, 1992; Fivush, 1994; Flin, Boon, Knox, & Bull, 1992; Gilbert & Fisher, 2006; Goodman, Hirschman, Hepps, & Rudy, 1991; La Rooy, Pipe, & Murray, 2005, 2007; Ornstein et al., 2006; Pipe & Wilson, 1994; Scrivner & Safer, 1988)—with details recalled in successive interviews. Such experiments have shown that adults and children report new information in subsequent successive interviews and that this information tends to be correct (Bluck et al., 1999; Bornstien, Liebel, & Scarberry, 1998; Dunning & Stern, 1992; Gilbert & Fisher, 2006; Scrivner & Safer, 1988). In one study, for example, participants were asked three times over the course of an hour to recall the events surrounding the widely televised O.J. Simpson verdict 8 months earlier (Bluck et al., 1999). New information was recalled in each interview, and there was no increase over time in the numbers of recall errors.

Experiments with children show that they too report new information when re-interviewed (see review by La Rooy et al., 2009). Specifically, repeated open-ended questioning not only facilitates the retrieval of additional information which tends to be highly accurate (Fivush & Shukat, 1995; Fivush & Hammond, 1989; Howe, Brainerd, & Reyna, 1992; Hudson & Fivush, 1991; La Rooy, Pipe, & Murray, 2005; McCauley & Fisher, 1995; Orbach & Lamb, 1999; Peterson & Bell, 1996) but may also increase the resistance to later suggestions (Brainerd & Ornstein, 1991; Goodman, Bottoms, Schwartz-Kenney, & Rudy, 1991; Warren & Lane, 1995) and may even inoculate memory against forgetting (Warren & Lane, 1995). Moreover, field studies have shown that children are less likely to contradict themselves when re-addressing an issue if the information was initially retrieved using free-recall prompts (Lamb & Fauchier, 2001; Orbach & Lamb, 2001).

Researchers have also demonstrated that repeated suggestive interviewing yields progressive increases in suggestibility and erroneous responding that may result in within-interview contradictions (e.g. Bruck, Ceci, & Hembrooke, 2002; Ceci, Loftus, Leichtman, & Bruck 1994; Goodman, Bottoms, et al., 1991; Goodman, Hirschman, et al., 1991; Lamb & Fauchier, 2001; Orbach & Lamb, 2001; Powell, Jones, & Campbell, 2003).

The benefits of repeated interviews are greatest when the interviews occur close together and when they occur shortly

after the events in question (La Rooy et al., 2005). When there are long delays (months or years) between the initial and repeated interviews, however, the amount of information available for recall decreases, whereas the number of memory errors increases; as a result, new information tends to be 'highly inaccurate' (e.g. Peterson, Moores, & White, 2001, Salmon & Pipe, 1997, 2000; Steward et al., 1996).

REPEATED INTERVIEWING IN LEGAL CONTEXTS

Although there have been only a few field studies on repeated interviewing, their results are informative (e.g. Hershkowitz et al., 1998; Hershkowitz & Turner, 2007). Hershkowitz et al. (1998) interviewed 4- to 13-year-old alleged victims of abuse in the investigators' office and then re-interviewed them at the scene of the alleged abuse using the National Institute of Child Health and Human Development (NICHD) Investigative Interview Protocol. On average, 23% of all the details reported were first provided in the second interview. Hershkowitz and Turner (2007) interviewed 4- to 13-year-old alleged victims of sexual abuse twice, using the NICHD Protocol, with a 30-minute free-drawing break between the two interviews. In the second interview, children provided many new details (27% of the total), of which 34% were central to the allegations being made. On average, 37% of the details reported in the second interview were consistent restatements of information already reported in the first interview, while about two-thirds of the details reported in the first interview were omitted in the second, perhaps because the second interviews were conducted by the same interviewers, leading the children to assume they are already familiar with the reported information and thus that they should focus on providing new details. Underscoring the importance of non-suggestive interviewing, Berkowitz (2000) showed that some information suggested by interviewers during initial forensic interviews with 4- to 13-year-old alleged victims of sexual abuse was incorporated into the witnesses' later accounts.

Ghetti, Goodman, Eisen, Qin, and Davis (2002) examined consistency of recall in 3- to 16-year-olds who were interviewed about sexual and physical abuse first in psychological evaluations and then again in investigative interviews. The children's reports were somewhat consistent and not contradictory. Older children were more consistent than younger children, perhaps because the latter provided incomplete accounts when first questioned about abuse.

Cederborg, La Rooy, and Lamb (2008) examined consistency of recall across repeated interviews with children and youths who had intellectual disabilities. Over 80% of the details reported in the second interviews were either completely new or elaborated on previously reported details. Contradictions were extremely rare (fewer than 1% of the reported details). Finally, La Rooy et al. (2010) described four cases in which alleged victims were re-interviewed immediately or a few days after initial investigative interviews. In each case, the interviewers limited themselves to open-ended questions in order to avoid contamination, and each second interview yielded new information of forensic importance.

Overall, the results of these field studies clearly show that repeated interviewing can be advantageous in forensic contexts, allowing victims to recall new information. None, however, elucidate what happens when young witnesses are re-interviewed multiple times, first disclosing crucial information months rather than days after the event. Although five of the six interviews in the present study were conducted within 11 days of the abduction, it was not until four and a half months after the abduction that the final—sixth—interview was conducted. Thus, the case described here provided a unique opportunity to explore the benefits (recall of new forensically important information) and risks (reporting of inaccurate or contradictory information) associated with repeated interviewing. We were particularly interested in the ways additional (new) information was elicited, in light of research showing that accuracy varies depending on how information is elicited (e.g. Carter, Bottoms, & Levine, 1996; Dent & Stephenson, 1979; Dent, 1982, 1986; Goodman, Bottoms, et al., 1991; Hutcheson, Baxter, Telfer, & Warden, 1995), with information freely recalled much more likely to be accurate than information elicited using recognition memory processes. Interestingly, early laboratory research on memory performance under hypnosis differentiated between recall and recognition memory enhancement (Erdelyi, 1988). Although ‘there is substantial evidence that hypnosis enhances correct responses in recall of meaningful materials...’ (Erdelyi, 1988, p.68), researchers have failed to show that the process of hypnosis *per se* produces memory recovery. Erdelyi (1988, 1996) instead suggested that the repeated effort devoted to the recall of inaccessible material was associated with the retrieval of increasing amounts of information in successive attempts at retrieval. In the present study, we distinguished between the retrieval of previously unrecalled information (reminiscence) and repetition of information that had already been reported.

THE CASE STUDY

Our objective in the present study was thus to examine new, consistent and contradictory details across the six investigative interviews conducted over a 4.3-month period with a 9-year-old witness to her sister’s abduction as well as instances of details introduced in the first interview and omitted in all subsequent interviews. Three of the forensic interviews (Interviews 1, 2 and 4) were conducted by a male police detective trained to interview child witnesses; two interviews (Interviews 3 and 6) were conducted by a similarly trained female detective, whereas Interview 5 was conducted by a physician, trained and specialized in hypnosis, with the male forensic interviewer present to supplement some of the questioning. The witness was a typically developing child from a stable and comfortable family background.

The first two interviews took place on the morning of the abduction, 5 and 10 hours following the abduction, respectively. Interview 3 took place 5 days later; Interviews 4 and 5 (hypnosis) took place 5 days after Interview 3, and Interview 6 took place 4 months later, nearly 5 months prior to the apprehension of the suspect and rescue of the victim.

About a month after Interviews 4 and 5, an artist used the child’s account to draw sketches of the suspect, but these were only released to the public months later, after the witness had named the abductor. In the meantime, the suspect was arrested for shoplifting and again for vandalizing a church, following which he was held in police custody for 6 days. It was not, however, until much later that he was identified by the police as the suspect in the abduction. Eleven days later, the victim was found, and the suspect was arrested.

For the purposes of this study, details were defined as units of information (words or phrases identifying or describing individuals, objects, actions, location, time, emotions/thoughts or sensations), following the practice first employed by Yuille and Cutshall (1986, 1989) and elaborated by Lamb et al. (1996, 2008). Each detail reported by the witness was categorized in terms of the eliciting utterance, as well as in terms of its content as new, repeated, or contradictory (with respect to previously reported details). Unfortunately, there was no objective record of the abduction, although the victim was later able to cast light on the accuracy of some of the details reported by the witness.

DATA CODING

Interview 1 was not electronically recorded; the interviewer attempted to write a verbatim account of the witness’ report as the interview progressed but did not note the eliciting prompts. The remaining five interviews were transcribed from audiotape. The transcribed audiotapes were double-checked to ensure that they had been faithfully transcribed. The transcript of the first—unrecorded—interview with the victim on the day of her recovery was coded in the same way as the remaining audio-taped interviews (replacing the interviewer’s use of third person with first person when appropriate, e.g. ‘I remember...’ replaced ‘The witness said she remembers...’), except when analysing the eliciting interviewer prompts (because this information was not recorded by the interviewer).

All interviewer prompts and details were coded by a rater trained on an independent set of transcripts until she agreed on the identification and categorization of at least 95% of the interviewer prompts and details with a second trained rater. During the course of rating, all the transcripts were independently coded by the second rater to ensure that they remained equivalently reliable. Reliability regarding utterance types was assessed using Cohen’s Kappa (Cohen, Cohen, West, & Aiken, 2003); the overall Kappa was 0.96, and for individual categories agreement ranged from 0.89 to 0.97. Agreement regarding details ranged from 0.90 to 0.95. All disagreements were discussed with an additional trained coder until consensus was reached.

CODING INTERVIEWERS’ PROMPTS

Interviewer utterances were defined as ‘turns’ in the discourse or conversation. Following Lamb et al. (1996, 2008, 2009), the interviewer utterances were categorized as Invitations, Summaries, Facilitators, Directive prompts, Option-posing prompts and Suggestive prompts, as follows:

1. *Invitations* are input-free prompts, including questions, statements or imperatives prompting free-recall responses from the child. Such prompts do not delimit the child's focus except in a general way (for example, 'Tell me everything that happened'). *Cued invitations* use details disclosed by the child as refocusing cues, followed by invitations (for example, 'You mentioned that he touched you. Tell me everything about the touching.'). 'You mentioned that he locked the door. Tell me what happened right after that').
2. *Summaries* accurately restate what the child has just said without any explicit request for information or response. Like information elicited using invitations and directive prompts, information provided following summaries should derive from recall memory.
3. *Directive prompts* refocus the child's attention on already mentioned details or aspects of the alleged incident, providing a category for requesting additional information using 'Wh-' questions (cued recall). For example, the interviewer might say 'What colour was the t-shirt?' when the child mentioned a t-shirt.
4. *Option-posing prompts* focus the child's attention on details or aspects of the alleged incident that the child has not previously mentioned, asking the child to affirm, negate or select an investigator-given option, thus using recognition memory processes, but do not imply that a particular response is expected. For example, the investigator might ask 'Did he touch you over or under your clothes?' when the child mentioned being touched.
5. *Suggestive prompts* introduce information that has not already been provided by the child (e.g. 'So how do you know she was sitting on the bed?' when the child has not said anything about sitting on the bed) or prompts that strongly communicate what response is expected (e.g. 'It hurt, didn't it?'). When a single turn in the dialogue included two or more statements or questions that could be coded differently, the highest (less open) category defined by the numerical label in the above list was applied.
6. *Facilitators*, defined as non-suggestive encouragements to continue with ongoing responses to previous utterances (e.g. 'O.K.', 'Uhh', or repetition of the last few words spoken by the child) were not counted as independent types of prompts because they encourage children to continue their responses to the preceding prompts (Hershkowitz, 2002).

CONTENT ANALYSES OF THE CHILD'S ACCOUNT

Qualitative and quantitative content analyses of the child's accounts focused on all *substantive* information, that is, information directly related to the investigated incident. Details (defined above) were further categorized as central or peripheral. Central details were defined as such because their absence would change the plot (e.g. the suspect was holding a handgun). By definition, peripheral details described aspects of the alleged event that were not integral to the plot (e.g. the colour of the suspect's clothing) yet were still forensically relevant.

To assess both the consistency of the witness's account as well as the introduction of new forensically relevant information, we compared the details provided in each witness' account of the abduction with those provided by the witness in earlier interviews, identifying information that was *new*, *consistent* or *contradictory*. By comparing the first interview with all subsequent interviews, we identified information that was reported in the first interview but was *omitted* from later accounts. Details were thus assigned to one of the following four exhaustive and mutually exclusive categories:

New details were any details that were reported for the first time. New details were counted only once, the first time they appeared in Interviews 1 to 6, so all details reported in the first interview were, by definition, new details the first time they were mentioned.

Consistent details were details that had already been reported in an earlier interview. Within-interview repetitions were not considered 'consistent details.' Further, the repetition of a detail was counted only once, the first time it was reported subsequent to its introduction in an earlier interview.

Contradictory details were new details that described the same action, individual or location introduced in an earlier interview in such a way that one description must be inaccurate (for example, he was holding a handgun vs he was holding a knife).

Omitted details were reported in the first interview but were not repeated in subsequent interviews.

Special attention was also given to the witness' disclosure of forensic leads that may have contributed to the identification and apprehension of the suspect (e.g. descriptions of the perpetrator's characteristics or appearance).

Details were categorized according to their eliciting prompt types as '*free-recall details*' (elicited by Invitations, including 'cued invitations', and Summaries), '*cued-recall details*' (elicited using Directive prompts) and '*recognition details*' (elicited using Option-posing or Suggestive prompts), tapping recognition memory processes.

THE HYPNOSIS INTERVIEW

The dynamics of the interview under hypnosis were analysed using a method identical to the one used for all other interviews (as described above), based on the extent of interviewer input.

ETHICAL CONSIDERATIONS

With the exception of one interview (the 'hypnosis' interview), the interviews were conducted by detectives who had been trained to use the NICHD Investigative Interview Protocol. All interviews were conducted for investigative purposes. Transcripts of the interviews were later made available for research purposes by the interviewers' supervisor. All case material that was made accessible to the researchers in the present study was treated with utmost confidentiality. Except for the witness' age, all case material was 'sanitized', with any identifying information (names, dates, locations) removed. The witness and her

parents were also provided with a copy of this report before publication; they did not take advantage of the opportunity to comment on or request changes to the report.

RESULTS

As shown in Table 1, a total of 1906 details were reported; 1088 were categorized as 'new' details, of which 4 were contradictory, and 818 details were repeated at least once. The number (and percentages) of these details are examined in greater detail in the sections that follow.

New details reported across the six interviews

Of the 1088 new details reported in the six interviews, Interview 1 contributed 279 (26%); Interview 2, 304 (28%); Interview 3, 340 (31%); Interview 4, 30 (3%); Interview 5 (under hypnosis), 88 (8%); and Interview 6, 47 (4%) new details. The final three interviews (including the interview under hypnosis) contributed considerably fewer new details (15% of the total) than the first three interviews (85% of the total), and only 12% (135) of the new details were provided during or after the hypnosis interview (Interviews 5 and 6 combined). Figure 1 shows how substantive details were accumulated over the course of the investigation.

Because the eliciting interviewer prompts in Interview 1 were not recorded, we could not determine how details were elicited in this interview, but of the remaining 809 new details, 256 (32%) were elicited using invitations and summaries. Three hundred and thirty-five (41%) were elicited using directive prompts, 189 (23%) were elicited using option-posing prompts, and 29 (4%) were elicited using suggestive prompts. Overall, therefore, 73% (591 details) of the 809 new details elicited in Interviews 2 to 6 were elicited in response to recall prompts (invitations, summaries and directives), whereas 27% (218 details) were elicited in response to recognition prompts (option-posing and suggestive prompts). Examining the individual interviews reveals similar interview dynamics, with 64%, 76.5%, 100%, 79.5% and 79% of the details in Interviews 2, 3, 4, 5 and 6, respectively, elicited using recall prompts.

Of the 157 new *central* details for which eliciting prompts could be determined (Interviews 2–6), 65 (41%) were elicited using either invitations or summaries, 61 (39%) were elicited by directive prompts, 28 (18%) were elicited by

option-posing prompts, and 3 (2%) were elicited suggestively. Thus, 80% of the new central details elicited in Interviews 2–6 were elicited using recall prompts, whereas 20% were elicited using recognition prompts. In sum, additional new information was largely elicited using recall prompts and was thus more likely to be accurate than information elicited using riskier recognition prompts.

Of the 242 new details that were central (22% of all new details), 85 (35%) were reported in Interview 1, 65 (27%) in Interview 2, 66 (27%) in Interview 3, 2 (<1%) in Interview 4, 10 (4%) in Interview 5 (under hypnosis) and 14 (6%) in Interview 6. Following the pattern for total new details, only 24 (10%) of the new central details were reported during or after the interview under hypnosis. Although few in number, the additional details provided in the last two interviews might have been critical, and this possibility is explored further below. Importantly, new central information elicited under hypnosis and in Interview 6, combined, amounted to 24 (10% of the total number of central details across all six

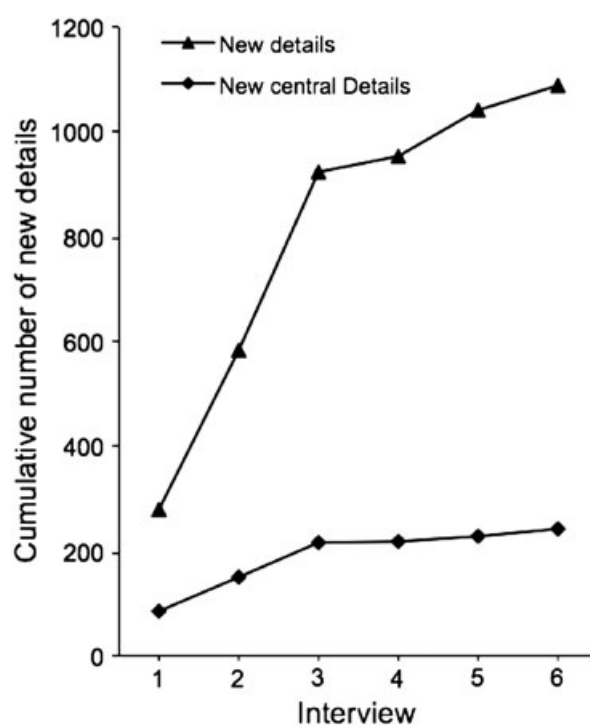


Figure 1. The cumulative recall of new details reported across the six interviews

Table 1. The number (and %) of details of each type reported in each of the interviews

	Interview						Total
	1	2	3	4	5	6	
Total	279 (15%)	446 (23%)	580 (30%)	184 (10%)	341 (18%)	76 (4%)	1906 (100%)
New	279 (26%)	304 (28%)	340 (31%)	30 (3%)	88 (8%)	47 (4%)	1088 (100%)
Repeated	–	142 (17%)	240 (29%)	154 (19%)	253 (31%)	29 (4%)	818 (100%)
Total Central	85 (15%)	128 (23%)	147 (27%)	77 (14%)	99 (18%)	14 (3%)	550 (100%)
New central	85 (35%)	65 (27%)	66 (27%)	2 (1%)	10 (4%)	14 (6%)	242 (100%)

interviews), of which 21 were free recall and three were recall details, retrieved in the witness' own words with no possible interviewer contamination and were thus likely to be highly accurate as was confirmed by the victim's account upon her rescue. Remarkably, all the central details retrieved in Interview 6 were new, and all were disclosed spontaneously.

Overall, and as further detailed in the section below, the witness continued to provide new details in each of the interviews, with the core of the accounts remarkably consistent.

Most new information was elicited using recall prompts and thus was more likely to be accurate.

Consistent details

Overall, 192 (69%) of the 279 details reported in Interview 1 were repeated in later interviews; 142 (51%) of the total number of details in Interview 1 were repeated in Interview 2. Of the 85 central details reported in Interview 1, 67 (79%) were repeated in later interviews. Of the 446 details reported in Interview 2, 142 (32%) were consistent with information reported in Interview 1. Sixty-three (49%) of the 128 central details in Interview 2 confirmed central information reported in Interview 1. Of the 580 details reported in Interview 3, 240 (41%) confirmed details reported in the two earlier interviews, including 81 (55%) of the 147 central details reported in Interview 3. Eighty-four per cent (154) of the 184 details reported in Interview 4 confirmed details reported in earlier interviews; of those, 77 details (42%) were central. Of the 341 details provided by the witness in the interview under hypnosis, 253 (74%) confirmed details reported in earlier interviews; 99 (39%) of the confirmed details were central. Finally, of the 76 details provided in Interview 6, 29 (38%) confirmed details reported in earlier interviews, but none of the confirming details were central.

A comparison of repeated details in Interviews 2 and 3 demonstrates the extent to which details were repeated in both. Out of 240 repeated details in Interview 3, 86 (47 central and 39 peripheral) were already repeated in Interview 2. Only 18 of the 86 details which were repeated for the second time were reported spontaneously (i.e. in response to a general invitation), however. Of those, 17 were central and traced the outline of the abduction event: seeing the abductor in the bedroom, the content of his threat and instructions to the sister, the weapon directed at the sister and the abductor and the sister leaving the bedroom. Most of the twice-repeated details, however, were elicited in response to the interviewer's directive or option-posing prompts. Overall, the information reported in the six interviews remained remarkably consistent.

Incorporation of recognition details within recall reports in subsequent interviews

Because it was not possible to determine how information was elicited in the first interview, we examined whether information elicited using recognition prompts in Interview 2 was later incorporated into the witness' recall responses. With two exceptions, all the information elicited using recognition prompts in Interview 2 that was repeated in subsequent interviews was incorporated into recall responses. The two

exceptions were both examples of consistent negative responses to repeated yes/no (recognition) prompts in later interviews, the first (repeated in Interviews 2 and 3, 'Were there any accents in his voice?') and the second (repeated in Interviews 2, 3, and 5): 'Did they call each other by name?'.

Of the 126 details reported by the witness in response to recognition prompts in Interview 2, 35 were incorporated into the witness' recall responses in subsequent interviews (33 in Interview 3; 2 in Interview 5—under hypnosis), all in response to directive questions. All the incorporated recognition details were descriptive—peripheral—details, including references to the victims' peripheral actions (15), suspect's appearance, actions and verbal content (16) and the witness' explanation of her ability to hear her sister and the abductor when they were outside the family home in response to a confrontational prompt (4).

Not considering the 85 *central details* reported in Interview 1, for which the eliciting utterances were unknown, 30 (19%) of the 157 new *central details* reported in Interviews 2–6 were elicited by recognition prompts (27 using option-posing and three using one suggestive prompt), and 127 (81%) were elicited by recall prompts. Twenty of these 30 new central recognition details were reported in Interview 2, and six of them were repeated in recall statements of later interviews as though they had been incorporated into memory.

Three of the new central details that were incorporated into memory and recalled later involved the witness waking up when the victim 'was jiggling the bed'. They were initially elicited by a rather confrontational suggestive prompt: 'How do you know that she was sitting on the bed before, if you didn't wake up until, uh, she stubbed her toe?', and were repeated by the witness in response to an open directive prompt in Interview 3 (further elaborating 'she had just got off'). The other three new central details involved the suspect threatening the victim: 'Don't scream and no one will get hurt'. These were initially elicited using option-posing prompts and then reported in response to free-recall prompts in Interviews 3, 4 and 5. Interestingly, and importantly, the victim later corroborated the accuracy of all the recognition-elicited details. She reported: 'I was awakened by [a male suspect] shaking me' (the jiggling) and the suspect's threat: 'Don't make a sound. You and your family don't want to get hurt'.

Details omitted from subsequent interviews

Of the 279 details reported in Interview 1, 85 (30%) were omitted from the witness' later accounts; only 10 (12% of the omitted details) were central, whereas 75 (88%) of them were peripheral details. Most omitted *peripheral details* were of the following five content categories: (1) 'suspect's peripheral actions' (e.g. 'He was touching some material on her nightstand'), (2) witness' attributions of *thoughts/feelings/sensations* (e.g. 'The suspect never knew I was actually awake'; 'I felt the suspect and my sister are going to enter my brothers' bedrooms and was very afraid the suspect was going to take my brothers'), (3) *temporal clauses* (e.g. 'when they talked'), (4) *descriptive elaborations*, such as adjectives/adverbs/prepositions

(e.g. ‘desk-’ qualifying a chair; ‘long’—in describing the hallway; ‘He *quickly* instructed my sister to be quiet’), and (5) spatial relations, such as ‘toward’; ‘behind’ (e.g. ‘Then he went *towards* my sister...’).

Omitted central details included the following:

Specifying ‘*I heard*’ before central information was reported in Interview 1 which was omitted from subsequent interviews.

The witness also reported in Interview 1 that the suspect’s gun was pointing at her sister’s ‘back’, but ‘back’ was not mentioned in subsequent interviews, although the witness did report ‘the suspect pointed his gun at my sister’s *ribs*’ (which might have documented the witness’ observations at two different times).

A central action ‘he *pushed* her’ is reported in Interview 1 when the witness describes the suspect and her sister entering the walk-in closet and is omitted from later similar descriptions;

Finally, the witness describes her sister asking a question, denoting the *receiver/object* of an action (‘the victim asked *suspect*’) in Interview 1, while reporting ‘My sister *said*’ in Interviews 2–5.

We have to keep in mind that such differences may reflect the fact that the testimony in Interview 1 was summarized by the interviewer and was not objectively recorded, as were Interviews 2–6. Importantly, not a single central issue reported in Interview 1 was omitted from subsequent interviews.

Contradictory details

Only four (0.2%) of the 809 new details reported in Interviews 2 to 6 contradicted information reported in an earlier interview. The four contradictory details were reported in Interviews 2 (one detail), 3 (two details) and 6 (one detail).

One of the contradictory details was central; it was reported by the witness in Interview 3 and involved the suspect’s verbal content when he talked to the victim (‘It wasn’t “hitchhiking”’), contradicting the assertion in Interview 1 that ‘The suspect said something about “hitchhiking”’. Because there was no recording of Interview 1, we could not determine how the initial report was elicited, but the witness confirmed her initial statement twice, once in response to a recall prompt in Interview 2, then later in the same interview in response to a suggestive summary, that is, ‘You first told me that you *thought* he said hitchhiking... Is that correct, is hitchhiking what you heard?’ by responding ‘*I know* he said something about hitchhiking, I don’t know what, cause I didn’t listen very carefully’. The witness expressed uncertainty about her recollection of these details later in Interview 2, however, indicating, in response to a free-recall prompt, that the suspect ‘said, *probably* hitchhiking or for ransom’. When she was then repeatedly asked if she thought the suspect said ‘hitchhiking or ransom’ she responded: ‘I know that he said “ransom”, but I am not quite sure about “hitchhiking”’.

It is important to note that the witness’ contradiction in Interview 3 was actually a spontaneous retrospective correction: ‘The first time I said that it was hitchhiking and I remembered that it wasn’t’. Interestingly, after stating

in Interview 3 that ‘it wasn’t hitchhiking’, the witness later reverted to her original assertion saying, in both Interviews 4 and 5, that the suspect did mention ‘hitchhiking’.

Two other contradictions involved peripheral details relating to the colour of the suspect’s hair (reported as ‘black’ in both Interviews 2 and 5 and as ‘dark brown’ in Interview 6); the colour of the suspect’s bag (reported as ‘white or tan’ in Interview 1 and as ‘brown’ in later interviews [the victim later said it was ‘beige’]). These could be explained by poor lighting at the time of the abduction (mostly provided by moonlight penetrating the dark room) that impeded finer colour identification.

The remaining contradictory detail involved the identity of the person who turned the light off when the suspect and victim left the walk-in closet (‘she’ in Interview 2, and ‘he’ in both Interviews 3 and 5).

No clear association between the type of eliciting prompt and contradictions could be discerned because contradictions were so rare. One of the four contradictions was elicited using an option-posing prompt, whereas the other three were elicited using an invitation, a cued-invitation and a directive prompt, respectively. We do not know how the two *contradicted* details introduced in Interview 1 were elicited, but of the other two, one was elicited using an invitation and one using a directive prompt. The most impressive finding, however, was that contradictions were very rare and were not made in response to recognition prompts.

Hypnosis interview

In total, the witness reported 417 details during the interview under hypnosis (5) and in the interview (6) immediately thereafter; of these, 135 details (33%) were new, 282 (68%) repeated earlier reported information and one detail (Interview 6; 0.02%) contradicted earlier reported information.

Of the 135 new details reported under hypnosis and during the interview following it (88 and 47 in Interviews 5 and 6, respectively), 24 were central (10 and 14, respectively). Interestingly, the hypnosis interview (5) contributed only 10 new central details (12% of the total number of 88 new details reported in Interview 5 and 4% of the 242 new central details reported overall), whereas Interview 6 contributed 14 new central details (100% of the total number of new details reported in Interview 6 and 6% of the total number of central details reported overall). Interestingly, none of the 29 repeated details in Interview 6 were central because all the 14 (18%) central details reported in Interview 6 were new.

The new central details obtained in Interviews 5 and 6 were few but crucial, leading to the apprehension of the suspect and the rescue of the victim. Importantly, most (79%) of the information elicited in Interviews 5 and 6 was elicited using recall prompts, and the 20% elicited using recognition prompts came in response to option-posing prompts; there were no suggestive prompts. Moreover, *all* the new central details in Interviews 5 and 6 were elicited using recall prompts, with 87.5% of them elicited using invitations. All 14 of the new central details provided in Interview 6 were reported spontaneously in response to two

open-ended invitations. The hypnotist physician, building on the skilful achievements of the investigating police detective in Interview 3 (the fact that characteristics of the abductor's voice were recognized by the witness), attempted mental context reinstatement, with focus on the abductor's voice, when the witness was under hypnosis. By taking the witness back in time, first to the time when she heard the suspect's voice during the abduction, then to the time when she first heard the suspect's voice, the hypnotist successfully elicited details that eventually led to identification of the abductor.

The focus on auditory rather than visual contextual cues was highly appropriate given both the circumstances (i.e. the incident occurred in the middle of the night, when lighting was poor and the witness had reported seeing very little) and the forensic leads previously provided by the witness. Even in the first interview, the witness reported that the 'Suspect talked very low or soft' (Interview 1), and when asked in Interview 2, 'When he spoke, describe to me what his voice sounded like' the witness responded: 'A low pitch', confirming what she had said earlier. In Interview 3, however, the interviewer attempted to exploit the potential auditory lead, and towards the end of this long interview continued to explore the possibility that the suspect's voice might have been familiar:

Interviewer: Do you think when you heard him talk that it was anybody that you knew?

Witness: Well, I thought I had heard him and seened him before but, no, I can't remember what his face looks like or...

Interviewer: Uh-huh

Witness: I don't know where I saw him at.

Interviewer: But there was something you kinda, sorta, recognized?

Witness: Yeah.

It was not until Interview 5, when the witness was under hypnosis, that the interviewing detective refocused on the suspect's auditory characteristics, asking the witness 'When was the very first time that he [the suspect] speaks?' and 'Did his voice sound familiar to you?', then following up on the witness' response, asking 'Can you tell me where you've heard that before?', but changing the topic when the witness responded negatively.

The hypnotist (physician), however, drawing on the auditory leads disclosed by the witness prior to the hypnosis interview (and confirmed by the interviewing detective at the beginning of the hypnosis interview), initiated the following exchange:

Physician: [Name], I want you to hear that man's voice again. Listen to it when he is talking in the bedroom around the closet. Review that in your mind several times, listen to him talking. Do I understand correctly that that voice sounded familiar to you?

Witness: Yes

Physician: Kay. Listen to it again in your mind and let your mind search back over your memories for when you last heard that voice. When you might have heard that

voice before. The voice sounded familiar, you said, let your mind search back through memories back through the past, to when you heard the voice that sounded like that before and when you can remember when a voice sounded like that before, nod your head up and down. Where are you?

Witness: See, I don't remember where the place was I just remember hearing it.

Physician: Kay. Just keep letting your mind go back before to memories in the past, remember how his voice sounded, let your mind keep going back through times where you heard a voice that sounded like that before, and when you can remember a time when a voice sounded like that, nod your head up and down. Take all the time you need. Let your mind, the deep part of your mind, search back through your memories, to a time when there was somebody that had a voice that sounded like that. Where are you?

Witness: Um, see I don't remember seeing anybody, I just remember hearing their voice.

Physician: Where were you when you heard their voice?

Witness: I don't know. I think I was at a store.

The physician then instructed the witness to let her mind go back weeks and months into the past and to keep hearing that voice. The witness continued to confirm hearing the voice but could not remember the location. The physician continued:

Can't remember who you were with? Can't remember if it was daytime or nighttime when you heard that voice?

Witness: I know it was daytime, but everything else I'm not quite sure.

Physician: Did you hear that voice in any particular house or place?

Witness: Not that I know of.

Physician: Does it seem like you've heard that voice very many times before?

Witness: Just once before.

Before the end of the hypnosis session the physician said to the witness:

Kay. In a minute I'm going to have you wake up from the hypnosis and come back to the room, and you're going to be able to remember everything that you remembered during the hypnosis. You'll be able to remain calm and comfortable and later on today, or in the days ahead after the hypnosis, you might remember something else, something else may come into your mind, and if you should remember something else, I want you to write it down, tell someone right away, so that they call the police to tell them anything else that you remember. Okay?

Four months later, the child recalled whose voice she had remembered and that realization was reviewed (in Interview 6) in response to the detective's invitation:

Detective: You talked to your mom the other night about something that you remembered. I need you to tell me about that.

Witness: I told her when she came back.... I was falling asleep and I was looking at World Guinness Records (giggles) and I was just thinking back while I was looking at that book what had happened and who might have done it. And this guy that had been working at our house and my mom just gave him a dollar and he said "Do you do you need any yard work or anything" and she said "Sure"... and he saw where, he practically saw where our room was and stuff... I think his name's [name]. Well anyways, um, I hopped out of bed and I went in my mom and dad's room and I said: "I think I know who it is". And she said "Who?" And I said, "Remember that one guy who, that you, you found on the street, that you gave him the one dollar and he came and worked for you". She said "[Name, Name?]"

Interview 6 was conducted 4 months and 10 days after the abduction by the interviewer who ascertained in Interview 3 that the voice was familiar. The auditory leads thus proved to be crucial and allowed the investigators (including the hypnotist) to use the child's recognition of the voice as the basis for mental context reinstatement, leading to the crucial and unique memory retrieval process that brought about the identification and apprehension of the abductor and the rescue of the victim.

Interestingly, a month following the hypnosis interview, the witness told her father that the voice of the person then held by police as a suspect in the case was *not* the voice she heard in the room on the night of the abduction.

Comparison of the victim's and witness' accounts

The witness' accounts of the abduction were compared with both the transcribed audio recording of an initial interview with the victim on the day of her release as well as with notes made following an unrecorded follow-up interview with the victim. Both interviews with the victim were conducted by detectives trained to conduct investigative interviews with young victims and witnesses. For purposes of comparison, we focused on those portions of the interviews concerned with phases of the abduction that took place while both the abductor and victim were inside the victim's home. Because much of the information provided in the two interviews was similar, we were able to attribute most of the victim's details to specific eliciting prompts.

The victim provided 138 informative details concerning the abduction that had taken place 9 months earlier. The victim related to only 96 (9%) of the 1088 new details reported by the witness across the six interviews, but 40% (55 details) of the details reported by the victim confirmed information reported by the witness. Specifically, the victim confirmed the witness' description of the abduction, her reference to the suspect's verbal instruction that the victim get out of bed, the victim's injury while tripping, the suspect's threats, the fact that the victim and suspect went

into the walk-in closet where the victim was instructed to look for shoes, and details regarding the general appearance of the suspect. Of the remaining 83 details reported by the victim, 56 (41%) were new, in that they provided information not mentioned by the witness. Most of these described the victim's emotions and thoughts during the event as well as her experiences both before the witness awakened and after the victim and her abductor left the sisters' bedroom. A further 27 (19% of the victim's details) contradicted information reported by the witness (2.5% of the witness' reported information was contradicted by the victim). Although most of the contradicting/contradicted details were peripheral (e.g. descriptions of the suspect's appearance, characteristics or accessories) rather than central, seven of the contradictory details (5% of the victim's details) involved central information related to two issues: the witness' report that (1) the 'suspect had a gun' and that (2) the suspect mentioning 'hitchhiking' or 'ransom'. The victim reported that 'the suspect did not have a gun' ('the suspect had a large knife with a 6–7" long blade... with a black handle', information that was later corroborated by the suspect) and that 'the suspect never mentioned "hitchhiking" or "ransom"'.

All the 105 informative details reported by the victim in the initial recorded interview were elicited using recall prompts (73 spontaneously or in response to invitations, 32 in response to directive prompts), meaning that they were likely to be accurate and uncontaminated by the interviewers.

DISCUSSION

In this article, we have closely examined a series of interviews with a 9-year-old girl about an incident that lasted a few minutes during the middle of the night. Comparison of the witness' and victim's accounts (even of verbal interchanges between the victim and suspect) indicate that the witness was a very reliable informant who responded cautiously to suggestions and speculation. When asked what had caused her to remember the perpetrator's voice and recognize it as 'familiar', for example, she resisted guessing and instead responded: 'Sometimes I just remember their voices and whenever I hear them again they are just familiar.' Even after the witness had identified the abductor, she answered: 'It just depends if he took her or not' when asked the speculative question: '[Name], do you want this to be the man that took [Name]?'

Although some of the information the witness reported appears to have been false, the vast majority of the information was accurate. Most of the false information reported by the witness may have been affected by the poor lighting conditions during the abduction (e.g. type of the perpetrator's hat, colour of his clothing, type of weapon) and by her inferences about what happened after the abductor and victim left the room.

In addition, despite the passage of time and the likelihood that there had been potentially contaminating conversations with family members and investigators as well as exposure to media coverage, the details that the witness reported were remarkably consistent over time. In each retrieval attempt, additional details, consistent with those reported earlier,

were provided. Most importantly, the child's initial conviction that she recognized the abductor's voice became the basis for a mental context reinstatement exercise that subsequently led the child to identify the suspect correctly. The witness' memory of the auditory attributes of the abductor's voice, which she heard when he was instructing and threatening her sister, turned out to be a crucial factor in helping her reconstruct her memory and attribute the voice she recognized to the person hired by her mother for work at their home a year earlier (which was later corroborated by the victim). Furthermore, this information, like most details concerning the abductor's instructions to the victim, was spontaneously confirmed by the victim when she was rescued. It was the child's identification of the kidnapper that permitted his apprehension and release of the victim. Success was also facilitated by the involvement of well-trained interviewers who gave priority to input-free recall prompts and avoided suggestive questioning (e.g. Ceci & Huffman, 1997), thereby fostering uncontaminated recall (Steward et al., 1996).

The facts that the witness was first interviewed soon after the abduction (the first two interviews were conducted on the day of the abduction) and that five of the six interviews were conducted within the first 11 days following the abduction may be partially responsible for the consistency of the information reported in the repeated interviews and for the richness of the information recalled. Thus, consistent with earlier experimental research, the study shows both reminiscence (i.e. recall of new details across repeated interviews) and consistency (i.e. information repeatedly reported) across the six interviews.

Although these were six interviews of the same witness about the same investigated event, only the first three interviews were fully comparable because the three later interviews were more narrowly focused; this may account for the smaller amounts of information retrieved in these interviews. In addition to reminiscence and consistency (see Bluck et al., 1999; Brainerd et al., 1990; Erdelyi, 1996, 2010; La Rooy et al., 2005), examination of the first three interviews reveals progressive increases in the absolute number of details recalled (i.e. hypermnnesia). Thus, the significant differences between the first three interviews and the later three interviews with respect to the total amount of information obtained cannot be attributed to differential recall of new information or loss of information across interviews with the passage of time. Instead, one must recognize the functions of Interviews 4–6 within the investigative process. Interview 4 was shorter than the others, preparing the ground for the hypnosis interview it preceded; it comprised the witness' free-recall account of the abduction in response to two open-ended invitations. Although the witness was given two additional opportunities to recall the abduction under hypnosis, once by the detective and once by the hypnotist, Interview 5 mainly involved guided mental reinstatement of the suspect's voice in an attempt to discover the suspect's identity. Finally, Interview 6 focused on the witness' disclosure of the suspect's identity and included responses to some questions about the suspect's appearance, followed by a long exchange involving the witness' first encounter with the suspect,

which was considered 'non-substantive' (with respect to the abduction event) and so did not yield substantive details about the abduction.

Critical information was remembered after the interview under hypnosis. Consistent with early laboratory experiments exploring recall under hypnosis (e.g. Erdelyi, 1996), however, memory recovery may be attributable to the extra effort at retrieval rather than to hypnosis *per se*. Exploration of the auditory details provided by the witness, guided by the hypnotist using the 'mental context reinstatement' technique, may have encouraged extra retrieval efforts (Erdelyi, 1988, 1996) prompted by stimuli (see Bergstein & Erdelyi, 2008) or retrieval cues of increasing effectiveness (see Brainerd et al., 1990). The effectiveness of mental context reinstatement has also been demonstrated in several field studies that did not involve hypnosis (e.g. Fisher & Geiselman, 1992; Hershkowitz, Orbach, Lamb, Sternberg, & Horowitz, 2002).

Unfortunately, the first interview with the witness was not recorded, so we do not know how information was elicited. However, the new central details reported in Interview 2 (conducted on the same day as Interview 1 but audio-taped) were consistent with those reported in the first interview.

The results reported here not only contribute to our understanding of how repeated non-suggestive interviewing can yield new information (i.e. reminiscence) but also inform practice, particularly in light of widespread professional concerns and admonitions about the possible negative effects of repeated interviewing on the accuracy of children's accounts (e.g. CornerHouse, Minneapolis, MN, 2008; Cross, Finkelhor, & Ormrod, 2005; Home Office, 1992, 2007; Sedlak et al., 2006). Many researchers have established that recall questioning is more likely to elicit accurate information than recognition questioning (e.g. Dent & Stephenson, 1979; Leichtman & Ceci, 1995) and that repeated recall questioning can facilitate memory recovery (e.g. Bluck et al., 1999; Erdelyi, 2010). The present study demonstrated that repeated interviewing prompted recovery of new information (reminiscence), with highly consistent reporting across interviews.

An important unique feature of the present study should be underscored: in most forensic investigations, ground truth is unknown, making it impossible to assess the accuracy of reported information or to determine whether suggestive prompts have indeed contaminated memory. In this case, the victim's account could be compared with the accounts provided by the witness during the long investigative process; this comparison suggested that the witness was an extremely accurate informant.

This case study thus underscores both the value and robustness of children's testimony when they are appropriately and non-suggestively interviewed and the value of re-interviewing witnesses and victims in pursuit of additional details about experienced events. Like the results of many other field and laboratory analogue studies, the results reported here make clear that witnesses are unlikely (we suspect, never) to recount *all* encoded details from memory during a single initial interview, however prolonged and exhaustive.

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