

More Than Suggestion: The Effect of Interviewing Techniques From the McMartin Preschool Case

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Child interviewing techniques derived from transcripts of the McMartin Preschool case were found to be substantially more effective than simple suggestive questions at inducing preschool children to make false allegations against a classroom visitor. Thirty-six children interviewed with McMartin techniques made 58% accusations, compared with 17% for 30 children interviewed with suggestive questions. Social influence and reinforcement appeared to be more powerful determinants of children's answers than simple suggestive questions. The SIRR model is proposed to explain how false statements may be elicited from children or adults. Categories identified in the SIRR model are *suggestive* questions, *social influence*, *reinforcement*, and *removal* from direct experience.

During the 1980s a series of highly publicized "daycare ritual abuse cases" erupted in communities across the United States and Europe (Kelley, 1996; Nathan & Snedeker, 1995). The cases typically involved allegations by preschool children that they had been terrorized and sexually abused by day-care workers in bizarre scenarios with Satanic or ritualistic overtones. Some scholars continue to take the view that these cases were genuine and involved actual ritual abuse (Faller, 1996; Summit, 1994). However, skepticism has become widespread among research psychologists (Bottoms & Davis, 1997; Bottoms, Shaver, & Goodman, 1996; Ceci & Bruck, 1995). An extensive body of research, arising in the wake of the day-care cases of the 1980s, has identified a variety of interviewing techniques that can induce children to make false reports (Ceci & Bruck, 1993, 1995; Myers, Saywitz, & Goodman, 1996).

The present study represents a continuation of this research but with innovations. First, several studies have

demonstrated that children's reports can be substantially distorted by suggestive influences over a period of weeks or months (Ceci, Loftus, Leichtman, & Bruck, 1994; Leichtman & Ceci, 1995; Poole & Lindsay, 1995). By contrast, the present study examined whether similar substantial changes could be produced in a matter of minutes, as within a single forensic interview. Second, prior studies have typically examined the effects of only one or two interviewing techniques at a time. By contrast, the present study examined the combined effect of a full "package" of techniques, modeled on a specific highly publicized day-care abuse case of the 1980s. The aim was to address a critical forensic question: What is the "synergistic effect" when several such techniques are used in combination, as has been true in real cases? Third, prior studies have tended to focus on specifically cognitive factors that can compromise the accuracy of children's reports. By contrast, the present study examined a broader set of factors, including social influence and reinforcement, that may affect children's reports of wrongdoing. The aim was to expand the conceptual framework that researchers and practitioners apply to child forensic interviewing and suggestibility.

The first day-care ritual abuse case to attract national attention in the United States was the McMartin Preschool case (*People v. Buckley*, 1990), in which seven teachers, including several elderly women, were accused of abusing several hundred children over a 10-year period in the Los Angeles suburb of Manhattan Beach (Reinhold, 1990; Timnick & McGraw, 1990). Beginning with an investigation in 1983, the case remained open until the early 1990s, generating one of the longest, most expensive trials in California history. Charges against most of the suspects were eventually dropped without trial. None of the ac-

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cused was ever convicted of any crime (D. Shaw, 1990; Timnick & McGraw, 1990; but see Fallor, 1996). At the center of the McMartin case were several hundred videotaped investigative interviews of children, conducted by a Los Angeles social service agency under contract to the prosecutor's office (Rohrlich, 1990; Wilkerson & Rainey, 1990). After the trial, jurors in the case criticized the interviews as leading (Reinhold, 1990; Timnick & McGraw, 1990; Wilkerson & Rainey, 1990). In ensuing years, popular-press books and articles (Eberle & Eberle, 1993; Hicks, 1991; Nathan & Snedeker, 1995; Tavis, 1997) and academic writings (Ceci & Bruck, 1995; Mason, 1991) also criticized the McMartin interviews. However, because transcripts of the interviews have been unavailable, commentaries on them have tended to be sketchy and impressionistic.

Recently, however, transcripts of the McMartin interviews have been archived at the Department of Psychology at McGill University and made available to researchers. In a study now underway, Wood et al. (1997) identified several McMartin techniques that would be considered problematic in light of currently recommended practices.

McMartin Interviewing Techniques: Descriptions, Examples, and Research

Wood et al. (1997) identified six problematic techniques in the McMartin interviews. The following sections (a) describe each technique, with examples, and (b) consider the techniques in light of past research. (A discussion of the clinical and forensic origins of the techniques is provided in Sena Garven's thesis, Garven, 1997.)

Suggestive Questions

Description and examples. The technique of *suggestive questions* consists of introducing new information into an interview when the child has not already provided that information in the same interview. For example, "Did he touch you on the bottom?" would be a highly suggestive question in a sexual abuse interview if the child had not already mentioned inappropriate touching.

Numerous examples of suggestive questions can be found in the McMartin interviews. For example, an interviewer asked the child, "Can you remember the naked pictures?" (Interview Number 111, p. 29) when no picture taking or nudity had been mentioned. (Interview numbers were assigned by Wood et al., 1997, and are available in the archive at McGill University). Another example unfolded like this (Interview Number 104, p. 83):

I = Interviewer. C = Child.

I: Who do you think played that game [horsey]?

C: Ray and Miss Peggy.

I: Ray and Miss Peggy? Did Miss Peggy take her clothes off?

C: Yeah.

I: I bet she looked funny didn't she? Did she have big boobs?

C: Yeah.

I: Yeah. And did they swing around?

C: Yeah.

Research. Suggestive questions have received considerable attention from researchers (Ceci, Ross, & Toglia, 1987; Dale, Loftus, & Rathburn, 1978; Leichtman & Ceci, 1995; Loftus & Davies, 1984). Almost 100 years ago, Alfred Binet found that suggestive questions reduced children's accuracy (Cunningham, 1988; Goodman & Reed, 1986). This finding has been confirmed by more recent research (see review by Ceci & Bruck, 1993), with a general finding that children become less suggestible as they grow older. However, even adults are susceptible to suggestive questions (Loftus, 1975; Loftus & Palmer, 1974; Loftus & Zanni, 1975).

Other People

Description and examples. The technique of *Other People* consists of telling the child that the interviewer has already received information from another person regarding the topics of the interview. For example, near the beginning of one McMartin interview, the interviewer told the child that "every single kid" in a class picture had already come to talk to her: "What we found out was that there's a whole bunch of yucky secrets from your old school" (Interview Number 103, p. 13). Later in the same interview, the interviewer said (p. 37):

We know about that game [Naked Movie Star] cause we just have had . . . twenty kids told us about that game. . . . Do you think if I ask you a question, you could put your thinking cap on and you might remember, Mr. Alligator [a puppet]?

Research. By telling a child about the statements of other people, an interviewer may create pressures toward conformity, "the tendency to change or modify our own behaviors so that they are consistent with those of other people" (Ettinger, Crooks, & Stein, 1994, p. 685). Binet (cited in Siegler, 1992) discovered that children's statements regarding factual matters can be influenced by conformity. Binet showed a group of children one card with a single line and a second card with several lines, then asked the children to choose the line on the second card that matched the line on the first card. In the first few trials there was an obvious correct answer. Later trials had no matching line. Nevertheless, children often agreed with a child who had emerged as an unofficial leader, even when the leader was obviously wrong.

Pynoos and Nader (1989), conducting interviews at a

school that had been attacked by a sniper, found that some children absent from school during the attack gave fabricated stories of having been present. Apparently the children had heard accounts of the attack from their parents, other children, or news reports and created stories to match. An unpublished study by Pettit, Fegan, and Howie (1990, as described in Ceci & Bruck, 1995, pp. 90–91) reported similar findings. Following a staged classroom event, several children who had not been present made reports as if they had. Apparently they concocted stories based on what they had heard from other children, although it is also possible that they were responding to leading questions by interviewers who had preconceptions about what had happened.

The influence of conformity pressure on children is probably best understood in light of the much more extensive literature on conformity in adults. In a classic study that has been replicated many times, Asch (1956; see also Larsen, 1991) demonstrated that adults' reports often conform to a group norm. J. S. Shaw, Garven, and Wood (1997) found that the immediate memory reports of an adult eyewitness could be substantially affected by the statements of another witness, an effect that remained stable after a 2-day delay.

Positive and Negative Consequences

Description and examples. The interviewing technique of *Positive Consequences* consists of giving, promising, or implying praise, approval, agreement, or other rewards to a child or indicating that the child will demonstrate desirable qualities (e.g., helpfulness, intelligence) by making a statement. A simple "yes" by an interviewer, indicating that the interviewer has understood the child, would not be considered Positive Consequences. Many examples of Positive Consequences can be found in the McMMartin interviews. For example, after a series of suggestive questions, one child agreed that a teacher photographed children while they were naked. The interviewer responded: "Can I pat you on the head...look at what a good help you can be. You're going to help all these little children just because you're so smart" (Interview Number 103, p. 38).

The technique of *Negative Consequences* consists of criticizing or disagreeing with a child's statement or otherwise indicating that the statement is incomplete, inadequate, or disappointing. Simple repetition of a question would not usually be considered Negative Consequences, unless surrounding parts of the interview indicate that the interviewer is being argumentative. Striking examples of Negative Consequences appear in the McMMartin interviews. For example, in one interview the child denied any wrongdoing by the McMMartin teachers. The interviewer responded, "Are you going to be stupid, or are you going

to be smart and help us here?" (Interview Number 103, p. 34). A few questions later the interviewer told the child's puppet: "Well, what good are you? You must be dumb" (Interview Number 103, p. 36).

Research. According to learning theory, a positive reinforcer increases, and a punishment decreases, the probability that a behavior will be repeated (Ettinger et al., 1994). A reinforcer or punishment that comes from another person is by definition a social reinforcer or social punishment. Zigler and Kanzer (1962) reported that middle class children were more apt to change their behavior for a verbal (social) reinforcer that emphasized correctness (e.g., "correct," "right") rather than general praise (e.g., "good," "fine"), an effect referred to as "Zigler's valence theory of social reinforcement" (Spence, 1973). Gilboa and Greenbaum (1978) found that a "warm" adult was more influential in affecting learning than a "cold" one, especially when verbal reinforcers emphasized correctness ("correct") over praise ("nice"). The effects of positive reinforcement and punishment on children's accuracy in forensic settings has apparently not been explored.

Asked-and-Answered

Description and examples. The interviewing technique of *Asked-and-Answered* consists of asking the child a question that she or he has already unambiguously answered in the immediately preceding portion of the interview. Repetition of a question would not be considered Asked-and-Answered if the interviewer is simply reflecting back the child's statement, without trying to elicit a new answer.

Notable examples of this technique can be seen in the McMMartin interviews. For example, one interchange proceeded as follows (Interview Number 111, p. 29):

I: Can you remember the naked pictures?

C: (Shakes head "no")

I: Can't remember that part?

C: (Shakes head "no")

I: Why don't you think about that for a while, okay? Your memory might come back to you.

Research. The effect of repetitive questioning on children's statements has been investigated with two types of questions, forced-choice and open-ended questions (Cassel, Roebbers, & Bjorklund, 1996; Poole & White, 1991, 1993). The general finding has been that children will change their answers to repeated forced-choice questions but not open-ended questions. This finding suggests that an Asked-and-Answered question may be most likely to reduce accuracy when paired with Suggestive Questions. Siegal, Waters, and Dinwiddy (1988) speculated that when a forced-choice question is repeated, children may assume that their first answer was incorrect and so change

it to please the interviewer. When conceptualized in this way, some Asked-and-Answered questions may constitute a form of Negative Consequences (see above), indicating that the child's answer has been incorrect or otherwise inadequate.

Inviting Speculation

Description and examples. The interviewing technique of *Inviting Speculation* consists of asking the child to offer opinions or speculations about past events, or framing the child's task during the interview as using imagination (e.g., "pretending") or solving a mystery (e.g., "figuring something out"). In the McMMartin interviews, this technique was often used when other techniques had failed to elicit an allegation of wrongdoing from the child. Children were urged to speculate: "Let's figure out what happened," "What do you think happened?" or "Let's pretend and see what might have happened." One such exchange proceeded as follows (Interview Number 101, pp. 60–61):

I: What . . . do you think . . . [let's] ask Mr. Rags [a puppet]. Maybe he could get his pointer and we can figure this out.

C: (unintelligible)

I: Now, I think this is another one of those tricky games. What do you think, Rags?

C: Yep.

I: Yes. Do you think some of that yucky touching happened, Rags, when she was tied up and she couldn't get away? Do you think some of that touching that—Mr. Ray might have done some of that touching? Do you think that's possible? Where do you think he would have touched her? Can you use your pointer and show us where he would have touched her? [Emphasis added]

Research. The technique of *Inviting Speculation* has not been explored in the scientific literature. However, it seems obvious that this approach might elicit speculations from children on the basis of what they have heard from other sources, rather than on what they have personally observed.

Aims of the Present Study

Research on child forensic interviewing has often focused on the cognitive effects of suggestion on children's memories. By contrast, we were interested in something more than suggestion: the effects of social influence and reinforcement on children's immediate reports. We hypothesized that the six techniques from the McMMartin Preschool case would be highly effective at eliciting false allegations of wrongdoing from children. In the present experiment a young man went to several preschools, read a story, and distributed treats. One week later half of the children were interviewed about his visit with techniques from the McMMartin interviews; the remaining children

were interviewed with suggestive questions. We hypothesized that children interviewed with the McMMartin techniques would allege wrongdoing substantially more often than children interviewed with only suggestive questions.

Method

Participants

Participants were 66 children, 35 female and 31 male, attending five different day-care centers. Informed consent was obtained from a parent or guardian of each child before the interview session. The children ranged in age from 3 to 6 years, with a mean age of 4.3 years, including seventeen 3-year-olds (mean age = 42.5 months), twenty 4-year-olds (mean age = 53.9 months), twenty-four 5-year-olds (mean age = 63 months), and five 6-year-olds (mean age = 72.8 months).

Procedure

Children at each day-care center attended a special story time led by a male graduate student introduced as Manny Morales. Manny, wearing an enormous colored hat, was presented by a teacher who mentioned his name several times. Manny then said:

Hi. I'm Manny and I'm here to tell you a story. The name of the story is *The Hunchback of Notre Dame* and I want you all to sit quietly and listen. How many of you saw the movie? Did you like it? After the story I brought some special treats to share with you. But first I have to take off my hat. Isn't it a silly hat?

Manny told the story in an engaging way, then placed a Hunchback of Notre Dame sticker on the back of each child's hand. Afterward he handed out a cupcake and napkin to each child with much fanfare, calling attention to the fact that the napkins had designs from the story. Manny then said good-bye to the class and left. The entire visit took approximately 20 min and was videotaped.

One week after Manny's story time, children were interviewed individually on videotape and audiotape, away from the regular class but in the same building. Each child was escorted by the interviewer to the interview site for the stated purpose of playing with some special toys. The McMMartin interviews began with extended rapport building. To create a similar warm atmosphere, the interviewer in the present study adopted techniques described by Carter, Bottoms, and Levine (1996). Specifically, the interviewer sat on the floor and faced the child, smiled, maintained eye contact, kept a relaxed body posture, and used a pleasant tone of voice.

Manipulation and Design

The present experiment set out to explore the effects of the McMMartin techniques, over and above the effects of suggestive questions. Therefore children were randomly assigned to one of two questioning conditions, (a) the social incentive condition, which incorporated the techniques from the McMMartin interviews, and (b) the suggestive control condition, which used suggestive questions alone. Both conditions included eight mis-

leading target items (questions about things Manny didn't do). Specifically, each child was asked whether Manny (a) tore a book, (b) put a sticker on the child's knee, (c) broke a toy, (d) stole a pen from the teacher's desk, (e) told the child a secret, (f) bumped the teacher on the way out, (g) said a bad word, and (h) threw a crayon at a child who was talking. Also included were four leading correct items (questions about things Manny did do). Specifically, children were asked if Manny (a) told the children to sit quietly and listen, (b) took off his hat, (c) handed out Hunchback of Notre Dame napkins, and (d) put a sticker on the child's hand. Thus, children in both conditions were questioned about eight misleading items and four leading correct items.

Rapport building was the same for both conditions, lasting about 3–4 min per child. However, each condition used a different statement to open questioning, and a different questioning format. In the suggestive control condition the opening statement was neutral:

I want to ask you some questions about the other day when Manny Morales came and read you *The Hunchback of Notre Dame*. He had on a silly hat didn't he?

The child was then asked once about each item with a suggestive question (e.g., "Did Manny tear the book while he was reading it?").

In the social incentive condition, the opening statement described what other children had supposedly said, then indicated that the child could be helpful and show good memory by reporting what Manny had done:

I want to ask you some questions about the other day when Manny Morales came and read you *The Hunchback of Notre Dame*. He had on a silly hat didn't he? Well, I already talked to the big kids and they said that Manny did some bad things. I want to see if you have a good memory like they did. Are you smart enough to remember? Good, because I really need your help.

The child was then asked one to three questions about each item. In the first question, the interviewer informed the child of what "other kids" had already said. If the child answered "yes" to the first question, thereby implicating Manny, the interviewer praised the child's intelligence, memory, or helpfulness, then went on to the next item. If the child did not answer "yes," the interviewer implied that the child's answer might be inadequate, repeated what the "other kids" had said, and re-asked the question. If the child answered "yes" to this second question, the child was praised and the interviewer went on to the next item. Otherwise the child was exhorted to try harder and asked if "maybe" Manny might have done the alleged action. If the child answered "yes" to this third question, the child was praised. Otherwise, the interviewer indicated mild disappointment.

The questioning format of the social incentive condition is illustrated by the following excerpt from one of the interviews:

I: The other kids say that Manny told them a secret and said not to tell anyone. Did Manny tell you a secret and tell you not to tell anyone?
C: (Shakes head No).

I: Think really hard. The other kids say he did. Did Manny tell you a secret and tell you not to tell anyone?

C: (Shakes head No).

I: Try really hard to remember. Do you think maybe he said a secret and told you not to tell anyone?

C: (Nods head Yes).

I: Maybe, okay. That's a help.

To control for order effects, the set of 12 items was divided into two blocks of 6 items, and the order of the blocks was counterbalanced. The two conditions (social incentive and suggestive control) were crossed with the two question orders, creating four cells. Participants were also blocked by age to ensure even distribution among the four cells.

Results

Manipulation Check

To confirm that interviews in the social incentive condition had actually used the techniques from the McMartin interviews, audiotapes were scored with a system developed by Wood et al. (1997). Raters were blind to the experimental hypotheses and design of the experiment. The scoring categories were Other People, Positive Consequences, Negative Consequences, Asked-and-Answered, and Inviting Speculation.¹ One rater scored interview transcripts for all 66 interviews, of which 17 (26%) were independently rescored by a second rater. Interrater agreement as measured by kappa was .98 for Other People, .98 for Positive Consequences, .95 for Negative Consequences, .94 for Asked-and-Answered, and .88 for Inviting Speculation. According to ratings by the primary scorer, Other People occurred an average of 17.16 times per interview in the social incentive condition versus 0.13 times per interview in the suggestive control. The corresponding numbers were 9.86 versus 0.0 for Positive Consequences, 10.06 versus 1.03 for Negative Consequences, 3.25 versus 0.0 for Asked-and-Answered, and 3.52 versus 0.0 for Inviting Speculation. These results confirmed that children in the social incentive condition, but not controls, were given a large "dose" of the McMartin techniques.

Scoring of Responses

Each answer by a child to an interviewer question was scored as "yes," "no," "maybe," or "other." "Yes" was scored when a child agreed either verbally or nonverbally with the main concept of the question. "No" was scored when the child disagreed with the main concept. All ratings were done from videotape so that the child's nonverbal and verbal responses could be evaluated. One

¹ The scoring categories are summarized here. A complete copy of the scoring rules may be obtained from James M. Wood, Department of Psychology, University of Texas at El Paso, El Paso, Texas 79968.

rater scored all 66 interviews, of which 17 (26%) were independently rescored by a second rater. Neither rater had participated in the manipulation check. Interrater agreement as measured by kappa was .97 for "yes" answers and .93 for "no" answers. "Maybe" and "other" answers were not included in the present analyses and therefore are not described here.

Dependent Variable

The dependent variable in the present study was the number of times that a child said "yes" to the interviewer's questions. In the suggestive control condition, this number was calculated simply by counting the number of "yes" answers that the child gave to the single question per item. For the social incentive condition, however, children could be asked up to three questions per item. Therefore in this condition a child was considered to have answered "yes" for an item if he or she answered "yes" to either the first or second question about that item (a maximum of one "yes" per item). The interviewer's third question for each item asked if "maybe" Manny had done something (Inviting Speculation). Because children's "yes" answers to the third question meant "maybe," these answers were not counted in the present analyses.

Preliminary Analyses

Because items had been counterbalanced and interviews took place in five different locations, we first conducted a preliminary 2 (item order) \times 2 (interview style) \times 5 (location) between-subjects analysis of variance (ANOVA), with the number of "yes" answers as the dependent variable. No significant main effect was found for item order or location, nor any significant interaction of these variables with interview style (all p s $>$.20). Consequently, the data were collapsed across order and location for all subsequent analyses.

At one of the five day-care centers, Manny Morales had inadvertently deviated from the experimental protocol by distributing napkins that did not bear a Hunchback of Notre Dame design. Children at this center were later asked, "Did Manny hand out napkins with your snack?" instead of "Did Manny hand out Hunchback of Notre Dame napkins?" We performed a one-way ANOVA to determine whether the difference in stimuli affected children's responses. No significant difference ($p >$.20) was found, so we combined data from this center with the others.

As already described, children were asked eight misleading questions, most of which asked whether Manny had done something bad (e.g., stolen a pen, bumped the teacher). There was a significant effect of gender for mis-

leading questions, $F(1, 64) = 5.27, p < .025$. The mean number of "yes" answers was 2.4 for girls but 4.0 for boys. Therefore, gender was entered as a covariate in all analyses involving misleading questions.

Misleading Questions

A 2 (interview style) \times 4 (age) between-subjects ANOVA revealed that the number of "yes" answers given by children in response to misleading questions varied as a function of interview style (social incentive vs. suggestive control), $F(1, 57) = 22.45, p < .001, \eta^2 = .28$, but not age, $F(3, 57) = 2.4, ns$, with no significant interaction (see Figure 1). Overall, children gave over three times as many "yes" answers to misleading questions in the social incentive condition ($M = 58.3\%, SD = 38.3\%$) as in the suggestive control condition ($M = 16.7\%, SD = 21.6\%$).

Children of all ages agreed with misleading questions at a substantially higher rate in the social incentive condition. Specifically, in the social incentive condition, the proportion of "yes" answers to misleading questions was 81% versus 31% for 3-year-olds, 54% versus 16% for 4-year-olds, 49% versus 8% for 5-year-olds, and 54% versus 6% for 6-year-olds.

Because variances were unequal and data were not normally distributed, we performed parallel statistical analyses using nonparametric tests. Results for the nonparametric analyses were slightly different than for the ANOVA. Specifically, as in the ANOVA, a Kruskal-Wallis test yielded a significant difference between interview styles, $\chi^2(1, N = 66) = 16.1, p < .001$. However, contrary to the ANOVA, the Spearman's correlation of age with number of "yes" answers was statistically significant, $\rho = -.2640, p < .05$. Thus the effect of age was equivocal and depended on the statistical approach.

Leading Correct Questions

All children were asked four leading correct questions, in which the information provided by the interviewer was accurate (e.g., "Did Manny tell you to sit quietly and listen?"). A 2 (interview style) \times 4 (age) ANOVA showed a main effect for interview style only, $F(1, 58) = 3.97, p < .05, \eta^2 = .06$. That is, children gave significantly more correct "yes" answers in the social incentive condition ($M = 92.4\%, SD = 13.1\%$) than in the suggestive control condition ($M = 80.0\%, SD = 28.2\%$). Thus the effect was statistically significant but rather small. As with misleading questions, nonparametric tests were performed. Contrary to the results using ANOVA, no significant effect was found for either interview style or age. Thus the effect of interview style on leading correct questions was equivocal and depended on the statistical approach.

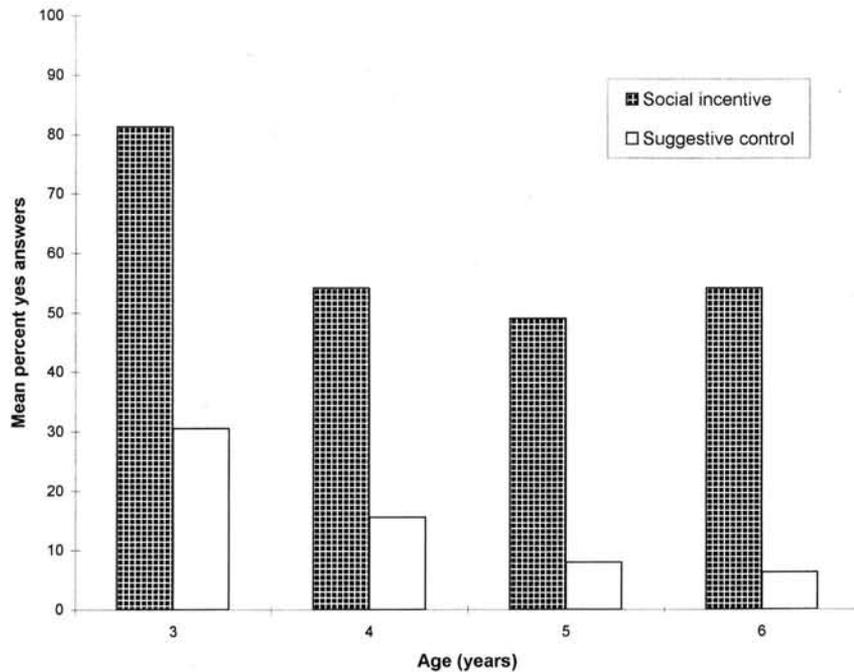


Figure 1. Mean percentage of "yes" answers to misleading questions by interview style and age.

Changes in Answers Over Time

To determine whether children may have learned to give more "yes" answers as the interview proceeded, we performed two analyses. First, we compared "yes" answers for the first and second halves of the interview, with age and gender entered as covariates. For misleading questions, an ANOVA revealed a significant interaction between interview style and number of "yes" answers in the first versus the second half of the interview, $F(1, 64) = 9.1, p < .01, \eta^2 = .13$. Specifically, children in the social incentive condition gave significantly more erroneous "yes" answers in the second half of the interview ($M = 65\%$) than the first half ($M = 51\%$). No significant parallel effect was found for children in the suggestive control condition, $F(1, 29) = 1.3, p > .20$. The same analysis we did with leading correct questions did not show any significant differences between the first and second halves of the interview.

A second analysis examined whether children in the social incentive condition gave "yes" answers with less prompting in the second half of the interview. Specifically, the analysis compared the number of times that children said "yes" to the interviewer's first question regarding an item (Yes-1) rather than the second question (Yes-2). A two-factor ANOVA comparing the number of Yes-1 and Yes-2 answers in the first and second half of the interview yielded a main effect, $F(1,35) = 32.40, p < .001, \eta^2 = .48$, for Yes-1 answers ($M = 3.8, SD = 2.9$) versus Yes-2

answers ($M = 0.8, SD = 1.2$). There was also a significant interaction between the two factors, $F(1,35) = 9.69, p < .01, \eta^2 = .22$. Planned comparisons showed that Yes-1 answers were significantly more frequent in the second half of the interview ($M = 2.3, SD = 1.7$) than the first half ($M = 1.5, SD = 1.5$). The number of Yes-2 questions did not significantly differ between the two halves of the interview. These results indicated that children in the social incentive condition learned to give "yes" answers with less interviewer prompting by the second half of the interview.

Responses to Individual Items

We included eight misleading items in both the social incentive and suggestive control conditions, with most items implying wrongdoing by Manny (e.g., Manny tore the book while reading it, Manny broke a toy). As may be seen in Table 1, children in the social incentive condition alleged wrongdoing by Manny at least twice as often as children in the suggestive control condition for seven of the eight items.

Effects of Interview Length and Number of Questions

The length of interviews, from the beginning of the opening statement to the end, was about 2.5 min longer for the social incentive condition ($M = 4.2$ min, $SD =$

Table 1
*Percentage of "Yes" Answers to Specific Misleading
 Items by Interview Style*

Misleading item	Social incentive (SI)	Suggestive control (SC)	Ratio SI:SC
Said a bad word	55.6	3.3	16.8:1
Threw crayon	66.7	6.7	10.0:1
Broke a toy	63.9	13.3	4.8:1
Put sticker on knee	44.4	10.0	4.4:1
Told child a secret	52.8	13.3	4.0:1
Stole pen	63.9	20.0	3.2:1
Tore book	61.1	30.0	2.0:1
Bumped teacher	58.3	36.7	1.6:1

1.0) than the suggestive control condition ($M = 1.5$ min, $SD = 0.2$). Furthermore, the children in the social incentive condition were asked more questions ($M = 19.9$, $SD = 5.9$) than children in the suggestive control condition ($M = 12$ questions). Therefore three follow-up analyses examined whether children in the social incentive condition may have committed more errors simply because their interviews were longer and contained more questions.

First, interviews of children in the suggestive control condition had an average length of 1.5 min. For comparison, we analyzed the first 1.5 min from children's interviews in the social incentive condition. During this time period, the children in the social incentive condition were questioned about a mean of 5.3 misleading items. They answered "yes" to 44.4% of these items, which was significantly different from the 16.7% for children in the suggestive control condition, $F(1,64) = 10.54$, $p = .0019$. Thus, the results indicated that a substantial between-groups difference in error rates remained when interview time was held constant.

Second, children in the suggestive control condition had been asked 12 questions in all (8 misleading, 4 leading correct), and answered "yes" to 16.7% of misleading items. For comparison, we analyzed the first 12 questions from children in the social incentive condition. In these 12 questions, the children in the social incentive condition were questioned about a mean of 5.3 misleading items. They answered "yes" to 51.9% of these items, which was significantly different from the 16.7% for children in the suggestive control condition, $F(1,64) = 19.33$, $p < .0001$. Thus, the results indicated that a substantial between-groups difference in error rates remained when the number of questions was held constant.

Third, for children in the social incentive condition, the correlation was calculated between the length of the interview in seconds and the percentage of "yes" answers to misleading questions. The correlation between these two variables was $-.87$ ($p < .001$). In other words, longer interviews were strongly associated with lower error rates,

contradicting the possibility that longer interview times caused inflated error rates.

Discussion

Two findings from the present study appear particularly important. First, the techniques in the social incentive condition, taken from the McMartin Preschool case, elicited substantially more false allegations from children than did simple suggestive questions. Specifically, allegations against Manny Morales were over three times more common in the social incentive condition than the suggestive control condition (58% vs. 17%). Age had only a marginal association with the effect: Children of all ages made substantially more allegations in the social incentive condition. Importantly, most misleading questions in the present study involved allegations of wrongdoing against Manny (stealing, throwing a crayon at a child, bumping the teacher). In addition, one question involved touching ("Did Manny put a sticker on your knee?") and another involved a secret ("Did Manny tell you a secret and tell you not to tell?"). Thus, the results appear relevant to real-life situations in which children are asked about alleged wrongdoing that involves touching and secrecy (e.g., in sexual abuse cases).

We conclude that even a short dose of reinforcement and social influence techniques can have a strong, immediate impact on children's accuracy. Whereas earlier studies have shown how children's reports can be influenced and distorted over a period of weeks or months (Ceci, Loftus, et al., 1994; Leichtman & Ceci, 1995), the present study indicates that similar distortions can be induced very rapidly if improper interviewing techniques are applied. When exposed to such techniques for only 4.5 min, children in the present study showed error rates close to 60%. By contrast, children in the McMartin case were exposed to such techniques for more than an hour during initial interviews (Velarde, 1997).

The second noteworthy finding of the present study is that children exposed to reinforcement and social influence techniques became more acquiescent as the interview proceeded. In the social incentive condition, but not the suggestive control condition, children replied "yes" to misleading questions more often in the second half of the interview than in the first half. In addition, children in the social incentive condition answered "yes" with less prompting as the interview proceeded. This finding suggests that such interviewing techniques can have a cumulative effect, making children more compliant to suggestion as the interview proceeds.

Limitations of the Present Findings

Several limitations of the present findings should be noted. First, the interviewing techniques from the McMar-

tin case should not be viewed as typical of the practice in most child protection and law enforcement agencies (see Lyon, 1995). In our experience, a few social workers and police sometimes use such techniques, with tragic results for children, adults, and even entire communities. However, such cases probably represent only a fraction of the total (Wood, McClure, & Birch, 1996).

Second, the present study examined a full package of techniques involving reinforcement and social influence (e.g., Other People, Positive Consequences, Negative Consequences, and Asked-and-Answered). Future research is necessary to "decompose" the effect by examining each technique separately.

Third, the present study included only children ages 3 to 6. Furthermore, the number of 6-year-olds was rather small. Can the results be generalized to older children? We believe that they can: The interviewing techniques studied here are based on principles that are effective even with adults (see discussion below). However, the issue calls for exploration.

Fourth, the alleged perpetrator in the present study was a relative stranger to the children. Furthermore, although most of the allegations involved wrongdoing, only one involved touching. Future research may explore the effect of reinforcement and social influence techniques when the perpetrator is better known to the children, or when the allegations focus on touching (Lyon, 1995; Pezdek & Roe, 1997).

Fifth, in the present study, children in the social incentive condition were asked somewhat more questions (19.9 vs. 12) for a longer period of time (4.5 min vs. 2 min) than children in the suggestive control condition. However, neither clinical experience nor prior research indicates that such a small difference in time could account for the large difference in error rate between the two conditions. Furthermore, secondary analyses (reported in the Results section) showed that a substantial difference in error rates remained, even when the number of questions and interview length were held constant.

How to Elicit False Statements From Children and Adults: The SIRR Model

We probably should not be surprised that the interviewing techniques in the present study substantially increased children's false allegations: Research findings and theory from the past 50 years would have predicted the results. First, research has repeatedly shown that suggestive questions influence the immediate and subsequent reports of adults (Loftus, 1975; Loftus & Palmer, 1974; Loftus & Zanni, 1975) as well as children (Ceci & Bruck, 1993; Ceci et al., 1987). Second, the classic literature on conformity in adults (Asch, 1956; Cialdini, 1993) and children (Binet, as cited in Siegler, 1992) would also

predict our results. Third, some of the best established findings in psychology concern the connection between learning and reinforcement (Ettinger et al., 1994; R. E. Smith, 1993). It is not surprising that children's answers in the present study conformed with the reward-punishment schedule established by the interviewer. Fourth, the effects of re-asking an Asked-and-Answered question are not as thoroughly studied as the previously mentioned techniques. However, research indicates that question repetition combined with suggestive questions can influence children to change their answers (Cassel et al., 1996; Poole & White, 1991, 1993).

Thus the interviewing techniques in the present study can be viewed within the context of decades of research on adults as well as children. Drawing on this research and insights from the present study, we now propose an integrative model to explain how false statements can be elicited from either children (as in some sexual abuse interviews) or adults (as in false confession or "recovered memory" therapy). We are indebted to insights of Kassin (1997) regarding false confessions and commentaries by Lindsay and Read (1995) and Bowers and Farvolden (1996) regarding "recovered memory."

We propose that the techniques likely to elicit false statements from children or adults fall into four overlapping but distinguishable categories, represented by the acronym SIRR: (a) *suggestive* questions, (b) *social influence*, (c) *reinforcement*, and (d) *removal* from direct experience. Below we show how the SIRR model can be applied to child interviews, false confessions, and "recovered memory" therapy.

Suggestive questions. Of the four categories in the SIRR model, suggestive questions has received by far the most attention from researchers. As we have already discussed, a multitude of studies show that suggestive questions can affect the reports of both children and adults (Cassel et al., 1996; Ceci & Bruck, 1995; Loftus, 1975; Loftus & Davies, 1984; Loftus & Palmer, 1974; Loftus & Zanni, 1975; Poole & Lindsay, 1995). However, in the present study suggestive questions produced a rather small error rate (17%) compared with the full package of social incentive techniques (58%). It is clear that other components of the SIRR model (social influence, reinforcement) can powerfully affect children's reports, above and beyond the effect of suggestive questions.

Social influence. The second category of the SIRR model embraces a wide variety of social influence techniques that can potentially exert a negative influence on children's and adults' reports. In the present study, the most distinctive social influence technique was Other People. Telling a child about the statements of other people can be understood as a technique for inducing social conformity (Asch, 1956). Other problematic interviewing techniques can also be understood as forms of social in-

fluence: intimidating the child, telling the child the interviewer's point of view, inducing stereotypes (Leichtman & Ceci, 1995). Each of these techniques can be understood in light of research on social influence, authority, and persuasion (Brewer & Crano, 1994; Cialdini, 1993; E. R. Smith & Mackie, 1995).

Social influence techniques can have a similar effect on adults' statements. Kassin and Kiechel (1996) found that college students were substantially more likely to make a false confession to wrongdoing when a "witness" claimed to have seen the act. J. S. Shaw et al. (1997) found that a witness's initial and subsequent reports could be influenced by false information from another witness. Bowers and Farvolden (1996) and Lindsay and Read (1995) argued that social influence techniques in trauma-focused therapy may encourage false reports of childhood abuse: (a) suggestions by a trusted authority (the therapist) that the client is likely to have been abused, and (b) participation in groups where descriptions of abuse are encouraged and rewarded.

Reinforcement. It seems almost obvious to propose that reinforcement (tangible, promised, or implied punishment or reward) can negatively affect the reports of both children and adults. However, this third category of the SIRR model has received scant research attention. In the present study, reinforcement was delivered in the form of Positive Consequences (praising, indicating the child could be "helpful" or "smart") and Negative Consequences (implying the child's answer was inadequate). The potential undesirable effects of punishment (Negative Consequences) are obvious. Research by Gilboa and Greenbaum (1978) suggests that positive reinforcement (Positive Consequences) may also be problematic, especially when accompanied by a warm interviewing technique.

Other questionable child interviewing techniques may be understood as forms of reinforcement: giving tangible rewards (e.g., stickers or food) to reward disclosure, limiting the child's mobility (e.g., delaying a visit to the bathroom or return to home) until he or she has discussed issues of interest to the interviewer, subjecting the child to physically or verbally stressful stimuli during the interview (e.g., calling the child a liar). As indicated earlier, repeating an Asked-and-Answered question can also constitute a form of negative feedback or punishment.

The effect of reinforcement on false statements by adults has recently begun to attract attention. Kassin (1997) asserted that false confessions may sometimes be elicited when interrogators promise or imply that a confession will bring a more lenient sentence or that a refusal to confess will lead to harsher punishment. Ofshe (1989) argued that some criminal suspects give false confessions because they are persuaded that the stress of confessing will be less than the stress of not confessing: That is, they

confess because they anticipate the removal of aversive stimuli (negative reinforcement). Similarly, Lindsay and Read (1995) argued that a client in trauma-focused therapy may be motivated to uncover "recovered memories" because he or she believes that the experience will lead to healing. Bowers and Farvolden (1996, p. 367) speculated how a client in trauma therapy may feel motivated to recover memories of abuse: "Unless something bad eventually surfaces, she is apt to experience herself as having failed therapy."

Removal from direct experience. Finally, in the fourth category of the SIRR model, we propose that false statements from children and adults become more likely when removal from direct experience is involved. This category is the most novel of the four proposed here. It may be understood by contrasting it with its opposite: the direct examination of a lay witness by a lawyer in court. Under direct examination, a lay witness is expected to testify about what he or she has directly observed. The witness is not generally allowed to speculate about events, offer opinions, or report what other people have observed. To the degree that an interviewing technique deviates from this pattern (asking for a direct report of events that the individual claims to have personally observed and remembered), we propose that the technique involves removal from direct experience (removal).

Two interviewing techniques in the McMartin case involved removal. The first, Inviting Speculation, has already been described. When a child is encouraged to speculate, there may be substantial doubt whether his or her subsequent statements reflect personal observation. Furthermore, the child, and perhaps even the interviewer, may sometimes have difficulty keeping track of the difference between speculations and actual experiences (Harris, Brown, Marriott, Whittall, & Harmer, 1991). The second removal technique in the McMartin case involved the use of puppets to question children. When an interviewer and child converse indirectly through puppets, the situation by its very nature invites "pretend" play and the use of imagination. We believe it is a great mistake to assume that a puppet's statements constitute reliable statements of fact, or are equivalent to a direct statement from the child him- or herself.

Experimental findings indicate that removal techniques can lead to "source misattribution" (Ceci, Huffman, Smith, & Loftus, 1994), inflate confidence in memory for events (Garry, Manning, Loftus, & Sherman, 1996), or even create erroneous memories (Hyman & Pentland, 1996). Furthermore, we hypothesize that removal may be especially likely to elicit false reports when it is used in combination with suggestive questions, social influence, or reinforcement (see the "double whammy model" of Bowers and Farvolden, 1996, pp. 371-372).

Techniques involving removal have recently received

attention in the literature on adults. Ofshe (1992; see also Wright, 1994) described a case study of a suspect who gave an apparently false confession to allegations of ritual abuse after "meditating" on events that he did not remember having observed. Ofshe and Singer (1994) voiced criticisms of several removal techniques that have been used to uncover "repressed" memories in therapy: hypnosis, interpreting dreams as literal or symbolic representations of past trauma, treating speculative or confabulated scenarios as memories. Bowers and Farvolden (1996) also criticized the use of dreams and hypnosis to recall trauma. They recommended that therapists "should cease and desist" from using "hypnosis and hypnosis-like techniques . . . to recover memories of abuse" (p. 369).

Directions for Future Research

The present findings indicate four avenues for future research. First, many studies on children's suggestibility have lacked an explicit theoretical basis, or focused exclusively on the cognitive factors that can affect children's accuracy. The present study suggests, however, that non-cognitive factors such as social influence and reinforcement can have a strong impact on children's reports in the interview setting and deserve increased attention. We recommend that, in the future, researchers investigate the broad range of factors identified in the SIRR model, both individually and in combination with adults and children, to better understand the effects observed in the present study.

We speculate that most errors made by children in the present study were caused by three techniques: Other People, Positive Consequences, and Negative Consequences. In other words, we hypothesize that these three techniques, which involve social influence and reinforcement, have a strong, immediate impact on children's reports. By contrast, the technique of Inviting Speculation seems most likely to have a delayed rather than immediate impact (see Hyman & Pentland, 1996; Poole & White, 1993). Future studies using a decomposition strategy may explore these hypotheses. In addition, such studies may examine whether a special "synergistic" effect is achieved by using several of these techniques in combination, as in the present study. That is, when these techniques are used in combination, are the effects perhaps multiplicative rather than additive?

Second, the present study examined the immediate effects of reinforcement and social influence on children's reports of wrongdoing. Future research should examine the delayed effects as well. It seems likely that the effects of such techniques endure over time. For example, research on consistency and commitment (Cialdini, 1993) suggests that initial false reports are likely to be followed by later false reports. Furthermore, research indicates that

postevent misinformation can have a lasting effect on reports by both children and adults (Cassel et al., 1996; Ceci & Bruck, 1995; Loftus & Davies, 1984; Poole & Lindsay, 1995) and that misinformation from other witnesses can have a similar enduring effect (J. S. Shaw et al., 1997). It seems likely that children's reports are most likely to be permanently affected if their daily environment reinforces their initial reports (e.g., a teacher says, "I'm sure proud of you for telling what Manny did").

Third, interviewing techniques involving removal deserve more exploration by researchers. We believe that removal techniques may have their strongest effect when combined with suggestiveness, social influence, or reinforcement. In some cases, removal techniques may provide an "escape hatch" for a child who feels pressured to make false allegations. For example, by speaking through a puppet and describing what "might" have happened, a child may be able simultaneously to satisfy an insistent interviewer and avoid lying.

Fourth, studies by Carter et al. (1996) and Goodman, Bottoms, Schwartz-Kenney, and Rudy (1991; see also Goodman, Quas, Batterman-Faunce, Riddlesberger, & Kuhn, 1994) indicate that a warm interviewing approach may reduce children's compliance with suggestive questions. However, the present findings suggest that warmth may have a different effect if social influence or reinforcement techniques are used. Future research may examine whether social incentives become even more reinforcing to a child when the interviewer is warm.

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