

Research Article

INTERVIEWING WITNESSES: Forced Confabulation and Confirmatory Feedback Increase False Memories

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Abstract—*In two experiments, adults who witnessed a videotaped event subsequently engaged in face-to-face interviews during which they were forced to confabulate information about the events they had seen. The interviewer selectively reinforced some of the participants' confabulated responses by providing confirmatory feedback (e.g., "Yes, _____ is the correct answer") and provided neutral (uninformative) feedback for the remaining confabulated responses (e.g., "O.K. _____"). One week later, participants developed false memories for the events they had earlier confabulated knowingly. However, confirmatory feedback increased false memory for forcibly confabulated events, increased confidence in those false memories, and increased the likelihood that participants would freely report the confabulated events 1 to 2 months later. The results illustrate the powerful role of social-motivational factors in promoting the development of false memories.*

The fallibility of eyewitness memory is a crucial problem in the administration of justice, and documented cases of false convictions based on faulty eyewitness testimony abound (e.g., Connors, Lundregan, Miller, & McEwan, 1996). Social scientists and legal practitioners have long recognized that suggestive forensic (or therapeutic) interview practices are a major cause of inaccuracies in eyewitness memory. Indeed, there is an extensive scientific literature demonstrating that exposure to misinformation can lead to false memories for details and even entire events that were never actually experienced (see Loftus, 1992, 1997, for reviews).

One limitation of the extant literature on eyewitness suggestibility is that it has focused almost exclusively on suggestive interviews involving implantation of false memories. In the implantation paradigm, the witness is given misinformation about a witnessed event, and suggestibility is measured as the extent to which the witness then (or later) assents to the misinformation provided by the interviewer. However, in real-world forensic and therapeutic settings, suggestive interview practices are not restricted to situations involving the explicit provision of misinformation. Rather, in some cases interviewers attempt to elicit from witnesses accounts that support interviewers' beliefs about what transpired (cf. Bruck, Ceci, & Hembrooke, 1998). To this end, interviewers may forcibly press witnesses to describe those events interviewers believe transpired, even when witnesses cannot remember or never witnessed the events they are pressed to testify about (cf. Gudjonsson, 1992, and Leo, 1996, for related discussion of interrogation practices used to elicit confessions).

Might witnesses eventually develop false memories for events they had earlier been forced to confabulate? Intuitively, it seems unlikely

they would do so. Presumably, events that are confabulated deliberately and under duress will be remembered as mere fabrications—even over the long term. However, contrary to this intuition, in a recent study we showed that elementary-school children who were pressed to confabulate information about a witnessed event later evidenced false memories for some of the events they had earlier confabulated knowingly (Ackil & Zaragoza, 1998), a phenomenon we call the *forced-confabulation effect*. In that study, participants viewed a movie clip and were then asked specific questions about blatantly false events. In order to answer these false-event questions, the children were required to confabulate, or make something up. Indeed, the children firmly resisted answering such questions, but were repeatedly encouraged to guess until they eventually did so. One week later, a large proportion of the children misremembered witnessing the events they had confabulated.

Interestingly, the extent to which adults are susceptible to this memory error is somewhat less clear. In the same study (Ackil & Zaragoza, 1998), the magnitude of the forced-confabulation effect in a college-age comparison group, though statistically reliable, was very small. Hence, the first objective of the present study was to further assess the reliability and robustness of the forced-confabulation effect in adults.

The second objective of this study was to examine the effects of interviewer feedback on the development of false memories for knowingly confabulated incidents. Specifically, we assessed whether providing confirming feedback immediately following participants' confabulated responses (e.g., "Yes, that's right!") might increase false memory for the forced confabulations. We suspect that confirmatory feedback is commonly used in forensic interviews in an attempt to set witnesses at ease and elicit their cooperation. In addition, we suspect that interviewers sometimes use feedback (both intentionally and unintentionally) as a means of shaping witnesses' testimony, selectively reinforcing witnesses when they provide information consistent with interviewers' theories and beliefs, and ignoring (or discouraging) witnesses when they provide information that does not support interviewers' presumptions.

To our knowledge, no studies have examined whether confirming feedback can lead to development of false memories. Yet recent studies involving erroneous lineup identifications show that such feedback can have surprisingly robust and broad effects (Wells & Bradfield, 1998, 1999). In these investigations, confirming feedback (e.g., "Good, you identified the suspect") provided after witnesses made spontaneous false identifications led to a variety of distortions in their memory and judgment (e.g., overestimations of how confident they were at the time of the identification). Thus, whereas past research has shown that confirmatory feedback can increase participants' confidence in erroneous testimony that was freely provided, the question we sought to address in the present study was whether confirmatory feedback can lead witnesses to develop false memory for events they would have otherwise correctly rejected as untrue.

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EXPERIMENT 1

Method

The materials and procedure were similar to those of our previous study (Ackil & Zaragoza, 1998) with the exception that a somewhat larger and more varied set of false-event questions was used and the feedback manipulation was added. A total of 98 undergraduates participated to fulfill a course requirement, with 30 participants in the *free* group (whose sole purpose was to verify that participants do not spontaneously answer the false-event questions) and 68 in the *forced* group. Participants came to the lab in pairs and first viewed an 8-min excerpt from the Disney movie *Looking for Miracles*, which depicts the adventures of two brothers at summer camp. The clip is filled with action and drama, including, for example, a fight among the campers and an encounter with a deadly snake.

Immediately thereafter, participants were separated and interviewed by different experimenters. All interviews were audiotaped. Before the interviews began, participants in the forced group were told they must provide an answer to every question, and were explicitly instructed to guess if they did not know an answer. In contrast, participants in the free group were explicitly instructed to respond only to those questions they could answer without guessing.

Following 2 warm-up questions, each participant responded to 12 questions. Of these, 8 were true-event questions about events depicted in the video; these were the same for all participants. The remaining 4 were false-event questions about events that were obviously not depicted in the video. Thus, in order to answer the false-event questions, participants had to make up, or confabulate, answers. For example, in going over a scene from the video, the experimenter said, "It [the chair] broke, and Delaney fell on the floor. Where was Delaney bleeding?" This question required a confabulated response, because, although Delaney did fall off a chair in the video, he clearly did not bleed or hurt himself in any way. When participants resisted answering these questions, the experimenter prompted them to provide their best guess (repeatedly if necessary) until they eventually acquiesced. There were two sets of 4 false-event questions (see the appendix), and for each pair of participants, one member was asked one set of questions and the partner was asked the alternate set. Across the experiment, the same number of participants was exposed to each of the 8 false-event questions.

For the feedback manipulation in the forced group, each participant received confirmatory feedback (e.g., "That's right, knee is the correct answer") following confabulated responses to two of the false-event questions, and neutral (uninformative) feedback delivered with flat affect (e.g., "knee, O.K.") following confabulated responses to the remaining two false-event questions. Across the experiment, each of the false-event questions served equally often in the confirmatory- and neutral-feedback conditions. (Neutral feedback was provided for all responses to true-event questions.)

False memory for confabulated events was assessed in two ways and at two time points: As in our previous study (Ackil & Zaragoza, 1998), false assents to having witnessed the confabulated events (and confidence in those assents) were assessed after 1 week, and free recall of confabulated events was assessed after 4 to 6 weeks. At the 1-week test, participants were met by a different experimenter, who informed them that the interviewer had made some mistakes, and had asked them questions about events that never happened in the video. Their task, they were told, was to indicate which things were in the

video and which were not. In this way, we sought to eliminate any perceived social pressure to respond consistently across test sessions.

All participants were asked 23 yes/no questions of the form "When you watched the video, did you see _____?" For each "yes" or "no" response, they indicated their confidence in their answer using one of the following five verbal descriptors: "not at all confident," "somewhat confident," "fairly confident," "considerably confident," and "extremely confident." This response format yielded two measures: assents (i.e., "yes" responses) and a confidence score (ranging from 1 to 10, with 1 indicating "extremely confident no" and 10 indicating "extremely confident yes"). For each participant, the test list included (a) the 4 confabulated items the participant had generated in response to the false-event questions (with half in each of the confirmatory- and neutral-feedback conditions), (b) the 4 items the participant's partner had confabulated in response to the alternate set of false-event questions, and (c) 15 filler items that included the responses the participant had given to the true-event questions, 4 additional items from the video, and 3 new items. However, because the main concern of this study was false memory for confabulated events, we report participants' false assents to their self-generated confabulations (the measure of false memory) and their partner's confabulations (the measure of base-rate error) only. (Note that this measure of base-rate error took into account the various types of confabulations participants actually generated.)

Four to 6 weeks after the initial interview, all participants in the forced group were contacted and asked to return for additional questioning. Fifty-seven (84%) did so. Upon arrival, they were told to describe the events they had seen as accurately and in as much detail as possible. To assist participants, the interviewer gave a general description of the major scenes in the video (e.g., the dining-hall scene), and for each scene instructed participants to describe such things as what happened, the people who were there, what they looked like, and so forth. In no way were participants cued to recall the specific events they had been forced to confabulate.

Results

We first address whether participants truly were forced to confabulate. Two pieces of evidence indicate they were. First, none of the participants in the free group (who were not forced to answer the false-event questions) spontaneously provided answers to any of the false-event questions. We infer from this finding that participants in the forced group would not have provided responses to the false-event questions had we not forced them to do so. Second, although participants in the forced group knew in advance that generating answers to all of the interviewer's questions was mandatory, they nevertheless overtly resisted answering the false-event questions (by verbalizing that they "didn't see that" or did not know the answer) 42% of the time. In fact, participants sometimes verbally resisted answering the false-event questions in multiple conversational turns (across false-event questions, the mean number of conversational turns accompanied by verbal resistance was 1.4). In contrast, participants never expressed verbal resistance to answering the true-event questions.

False recognition of confabulated events at 1 week

With regard to the main hypotheses, the results are clear: Participants developed false memories for events they had been forced to confabulate, and confirmatory feedback increased this false memory

effect. The mean proportion of false assents to confabulated events exceeded the base rate of false assents ($M = .08$) in both the neutral-feedback ($M = .26$) and the confirmatory-feedback ($M = .38$) conditions, $F(2, 134) = 14.6, p < .001$. Relative to neutral feedback, confirmatory feedback increased the proportion of false assents to the confabulated events, $t(67) = 2.0, p < .05$, and increased participants' confidence in their false assents ($M_s = 3.9$ and 5.0 for the neutral- and confirmatory-feedback conditions, respectively), $t(67) = 2.4, p < .05$.

Resistance and development of false memories

We next assessed whether there was a relationship between participants' verbal resistance to answering the false-event questions and their likelihood of developing false memories for the confabulated events. Verbal resistance was operationalized as the number of conversational turns in which a participant verbalized either disagreement with the false-event question (e.g., "He wasn't bleeding"), lack of knowledge about the queried information (e.g., "I don't remember," "I didn't see that"), or lack of confidence in his or her answer (e.g., "I'm just guessing"). It is possible that publicly expressing lack of knowledge or confidence about queried information increases the likelihood that one will remember confabulating a response, thereby reducing susceptibility to developing false memory.

All postevent interviews were transcribed and coded independently by two raters (with discrepancies resolved by a third rater). Two verbal-resistance scores were obtained for each participant by summing resistance to the false-event questions in the neutral- and confirmatory-feedback conditions separately. The negative correlation between verbal resistance and false memory was reliable in the neutral-feedback condition, $r(68) = -.30, p < .01$, but not in the confirmatory-feedback condition, $r(68) = -.22, p > .05$, though these correlations did not differ reliably from each other, $t(65) = 0.54, p > .05$.

To further examine the relationship between verbal resistance and susceptibility to false memory, for each feedback condition we divided the confabulated items into (a) those generated following verbal resistance and (b) those generated without verbal resistance, and assessed the mean proportion of false assents for each. In the neutral condition, false assents to verbally resisted items ($M = .14$) were rare (i.e., they did not reliably exceed the base rate of $.08, z = 1.7, p > .05$) and were significantly less frequent than false assents to items generated without verbal resistance ($M = .34; z = 2.67, p < .05$). However, in the confirmatory-feedback condition, the proportion of false assents to items confabulated with verbal resistance ($M = .32$) did exceed the base rate ($z = 3.2, p < .05$), and did not differ reliably from the proportion of false assents to items generated without verbal resistance ($M = .43; z = 1.29, p > .05$).

It is important to note that even when participants did not verbally resist answering false-event questions, they nevertheless evidenced more passive forms of resistance, such as refraining from answering for long periods of time. For a random subsample of 18 participants (with counterbalancing preserved), we compared participants' mean latencies to respond to the true-event questions ($M = 2.7$ s) with their mean latencies to respond to false-event questions for which they expressed no verbal resistance ($M = 11.7$ s). Participants consistently took much longer to generate a response in the latter case, $t(17) = -3.1, p < .01$. Interestingly, however, passive resistance was not associated with reduced development of false memories; the nonsignificant correlation between latency and confidence scores was identical for both feedback conditions, $r(64) = -1.6, p > .05$.

Why might resistance predict protection against false memory only when that resistance is expressed verbally? Verbal resistance may be a more accurate measure of resistance strength than response latency, because response latency can be influenced by other factors (e.g., how easy it is to generate a guess). However, it is also possible that publicly expressing resistance enhances memory for the resistance and for having confabulated the response. Whether overtly expressing resistance has benefits that are independent of resistance strength per se remains an important question for future research.

In summary, with neutral feedback overt verbal resistance was associated with protection against false memory, but passive resistance was not. When confirmatory feedback was provided, neither type of resistance was reliably associated with protection against false memory.

Free recall of confabulated events at 4 to 6 weeks

We next assessed whether participants would incorporate the confabulated events into their accounts of the video 4 to 6 weeks later, and found that they did so. Overall, participants freely recalled $.13$ of their forced confabulations in the neutral condition and $.27$ of their forced confabulations in the confirmatory condition. However, the finding that free recall of confabulated items was higher in the confirmatory condition is ambiguous. Because there were feedback effects on the recognition test, the feedback effect in free recall may simply reflect carryover from the earlier test.

To better assess whether confirmatory feedback increased spontaneous reporting of confabulated events, we restricted the analysis of free recall to those items participants had falsely recognized with high confidence (i.e., a rating of "considerably" or "extremely" confident) on the 1-week recognition test. The results provided strong evidence that confirmatory feedback increased free recall of confabulated events: The proportion of high-confidence false assents that were later freely recalled was $.31$ in the neutral condition and $.66$ in the confirmatory-feedback condition. Because free recall was assessed for items that were equated in false memory on the initial test, these results provide clear evidence that confirmatory feedback had an independent effect on long-term free recall.

EXPERIMENT 2

In Experiment 1, we interpreted the finding that confirmatory feedback increased the proportion of false assents as evidence that such feedback increased false memory for having witnessed the confabulated events. However, an alternative possibility is that participants claimed they remembered witnessing their confabulations simply because they remembered the feedback indicating their confabulated response was correct. To investigate this possibility, we assessed whether the feedback effect was dependent on memory for the confirmatory feedback.

Method

Ninety-four undergraduates participated, with 30 in the free group and 64 in the forced group. The materials and procedure were identical to those in Experiment 1 with the exception that two of the eight false-event questions were replaced (see the appendix), delayed free recall was not assessed, and, in addition to testing participants' memory for the video, we tested their memory for the interview (i.e., what they told the experimenter and whether they received feedback). To

Interviewing Witnesses

assess participants' memory for the interview, immediately after administering the recognition test of the video, the experimenter went through the 23-item test list a second time, and for each item asked, "During the interview, did you tell [experimenter's name] that _____?" (e.g., that Delaney's knee was bleeding). If the participant said "yes," the experimenter probed for memory of the interviewer's feedback with the question, "Did she give you any indication whether or not you were correct?" (If participants simply responded "yes" to the latter question, they were asked to amplify with the prompt "How so?") Once again, for this measure we report participants' responses for the confabulated items only. Note that a "yes" response to the "Did you tell?" question represents accurate memory for having provided the confabulated item in response to a question, but is uninformative with regard to whether the participant also remembered fabricating the response. Of primary interest, however, was participants' memory for the feedback.

Results

Once again, none of the participants in the free group spontaneously provided answers to the false-event questions, thus verifying that participants do not answer these questions unless forced to do so.

More important, the results clearly replicated the major findings of Experiment 1. First, there was strong evidence of a forced-confabulation effect: The mean proportion of false assents to confabulated items clearly exceeded the base rate ($M = .06$) in both the neutral-feedback ($M = .27$) and the confirmatory-feedback ($M = .55$) conditions, $F(2, 126) = 51.6, p < .0001$. Second, confirmatory feedback increased false assents to the confabulated events, $t(63) = 3.6, p < .001$, and increased participants' confidence in their false assents ($M_s = 4.9$ and 6.1 for the neutral- and confirmatory-feedback conditions, respectively), $t(63) = 3.5, p < .001$.

Interestingly, confirmatory feedback increased false assents even though it also improved participants' memory for having provided the confabulated items during the interview. The mean proportions of "Yes, I remember telling her" responses were .93 and .76 in the confirmatory- and neutral-feedback conditions, respectively, $t(63) = 5.4, p < .0001$. Apparently, participants remembered providing the confabulated items as responses, without remembering they had fabricated them; otherwise they would not have claimed they also remembered seeing those events in the video.

Is the confirmatory-feedback effect dependent on memory for the feedback? The mean corrected recognition score, $p(\text{hits}) - p(\text{false alarms})$, was .51, indicating that participants remembered the feedback fairly often. Therefore, we restricted the analysis to those cases in which participants indicated they did not remember confirmatory feedback, and assessed whether false assents varied as a function of feedback condition. The results provided strong evidence that the confirmatory-feedback effect is not dependent on memory for the feedback: The mean proportions of false assents were .39 in the neutral condition and .73 in the confirmatory condition. We conclude, therefore, that confirmatory feedback increases false memory for events that were confabulated knowingly.

GENERAL DISCUSSION

The present experiments show that adults, like young children (Ackil & Zaragoza, 1998), are prone to developing false memories for events they are forced to confabulate. These results are related to the

earlier finding (Schooler, Foster, & Loftus, 1988; Schreiber & Sergeant, 1998) that actively committing to misinformation on initial tests reduces the accuracy of memory for witnessed events later on. However, the present study goes beyond previous work by documenting that such effects occur even when participants are coerced into providing misinformation they would not have provided had they not been forced to do so.

Another unique feature of the forced-confabulation paradigm used in these studies is that participants self-generated the misinformation. There are several reasons to suspect that, in the absence of memory for having fabricated the fictitious events, self-generated fictitious events might be especially confusable for "real" memories. Not only is information that is self-generated better remembered than information that is not (Slamecka & Graf, 1978), but because self-generated fictitious events are likely to be influenced by a person's idiosyncratic knowledge and beliefs, the content of the made-up accounts may later be perceived as especially plausible and real.

The present experiments also establish that confirmatory feedback is a potent catalyst to the creation of false memory. In two experiments, confirmatory feedback increased false memory for confabulated events, increased confidence in those false memories, and increased the likelihood that participants would later freely report the confabulated events 1 to 2 months later (Experiment 1 only). Our results thus extend the previous finding that confirmatory feedback inflates confidence in erroneous identifications (and a variety of related judgments; Wells & Bradfield, 1998, 1999) over the short term, by showing that confirmatory feedback can lead to the creation of false memories over the long term.

Collectively, our findings suggest several possible mechanisms by which confirmatory feedback may have promoted development of false memories. First, confirmatory feedback may have led participants to discount any doubts they might have had about the veracity of their confabulations (see Table 1 for an illustrative example). Support for this hypothesis comes from the finding that confirmatory feedback diminished the advantage normally associated with overt verbal resistance. Upon receiving confirmatory feedback, participants may have disregarded those aspects of the false-event questioning episode that

Table 1. *Script of a forced-confabulation interview with confirmatory feedback*

Interviewer: After he fell, where was Delaney bleeding?
 Participant: He wasn't. He was? I didn't see any blood.
 Interviewer: What's your best guess?
 Participant: Where was he bleeding?
 Interviewer: Yeah.
 Participant: But he wasn't bleeding. Oh . . . I don't have a best guess. I didn't think he was bleeding. His knee?
 Interviewer: Okay, his knee.
 Participant: It's not his knee!
 Interviewer: That's actually the right answer.
 Participant: Is it? I was just thinking, kid falling, hit his knee on the chair, you know.

Note. After receiving confirmatory feedback, the participant not only abandoned her doubts about the veracity of the false event (that Delaney bled), but also constructed a scenario (he hit his knee on the chair) within which her confabulation (it was his knee that bled) could have transpired.

threatened their positive self-image (e.g., that they did not know the answers to several questions, that they gave in to the demand to make something up), and preferentially attended to the fact that their answers were "correct" (cf. Greenwald, 1980; Swann, Pelham, & Krull, 1989). In this way, confirmatory feedback may have reduced participants' memory for the kinds of evidence that could have prevented false memory errors later on.

Second, confirmatory feedback may have led participants to reflectively elaborate on the confabulated incidents in an effort to make them fit with the events they actually witnessed (e.g., by imagining how the confabulated incidents might have transpired; cf. Drivdahl & Zaragoza, 2001; Garry, Manning, Loftus, & Sherman, 1996; Hyman & Pentland, 1996). This hypothesis is consistent with the finding that after confirmatory feedback, forcibly confabulated incidents were more likely to become integrated into participants' long-term narrative accounts. It will be important for future research to further verify and elucidate the mechanisms that underlie the confirmatory-feedback effect.

In conclusion, the effects of confirmatory feedback documented here illustrate the powerful role of social-motivational factors and interview dynamics in the development of false memories. These factors have until recently received almost no empirical attention in the literature on adult eyewitness suggestibility (see Kassin & Kiechel, 1996, and Wells & Bradfield, 1998, for notable exceptions). Although ethical considerations prevent researchers from employing the repeated coercion and intimidation that people sometimes face when interrogated by authorities (Kassin, 1997), the present study shows that such extreme forms of social manipulation are not necessarily required to induce memory change. It is noteworthy that the interviewers in this study were not law-enforcement officials or legal professionals, but undergraduate and graduate research assistants from the participants' peer group. We suspect that the memory-distortion effects reported here may underestimate the potential for confirmatory feedback to effect memory change when it is provided by a more powerful, authoritative source.

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APPENDIX: THE POSTEVENT INTERVIEW

During the postevent interview, the experimenter reviewed the main events of the video in chronological order, pausing occasionally to ask a question. Each participant received 12 questions. Eight of these were true-event questions, and 4 were false-event questions. The false-event questions in Experiment 1 were as follows:

1. After he fell, where was Delaney bleeding?
2. What kind of hat was Delaney wearing?
3. While swimming to the other boat, what did one of the ladies say she had lost?
4. What was Sullivan wearing around his neck?
5. What gift did the ladies give to Delaney in thanks for killing the snake?
6. What did the boy say Sullivan had stolen?
7. What did Delaney tell them they had to do as punishment for bullying Sullivan?
8. What did he give to Sullivan to help keep him warm?

One member of each pair of participants received Questions 1, 3, 5, and 7; the other received Questions 2, 4, 6, and 8.

In Experiment 2, two of the false-event questions were changed, as follows:

1. After he fell, where did Delaney say he injured himself?
5. Before he brought out the cake, what were they having for lunch?