When a lie becomes the truth: The effects of self-generated misinformation on eyewitness memory

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This research investigated whether generating misinformation impairs memory for actual information. After watching a videotaped robbery, some witnesses were interviewed about it, but others did not rehearse the event details. One week later, the witnesses tried to remember the robber’s appearance. In Experiment 1, those who fabricated a description of the robber during the interview and those who did not rehearse remembered fewer correct details than did truthful witnesses or those who fabricated about another person. Witnesses who fabricated about the robber also reported more incorrect details than did truthful or non-interviewed witnesses. In Experiment 2, witnesses who fabricated about the robber performed as poorly on the memory test as did witnesses who answered interview questions using false information prepared for them. In both experiments deceptive witnesses sometimes reported invented details on the memory test, suggesting that they may have come to believe some fabrications.

“People lie to us eight hours a day. Everybody lies to us: offenders, victims, witnesses. They all lie to the police.”

(Chicago police officer interviewed by Fletcher, 1991, p. 255)

In her behind-the-scenes examination of the work lives of Chicago law enforcement personnel, journalist Connie Fletcher found that police officers are acutely aware that the people they interview during crime investigations may deliberately give them false information. However, most psychological research on eyewitness memory has been conducted under the assumption that witnesses usually try to provide factually correct accounts, and that the inaccuracies that sometimes occur are the result of honest mistakes, such as inadvertently incorporating misleading suggestions into the description of an event. An interesting question, which is addressed in the present research, is whether intentionally inventing false information can impair a witness’s memory for the actual details of an event.

In the typical procedure used in studies that demonstrate the well-known “misinformation effect” (e.g., Bekerian & Powers, 1983; Belli, 1989; Ceci, Ross, & Toglia, 1987; Loftus, Miller, & Burns, 1978; McCloskey & Zaragoza, 1985), witnesses first observe some event, which may be presented either on videotape, as a slide sequence, or as a live, staged event. At some point afterwards, witnesses in the “Misled” condition (but not in the control condition) are exposed to misleading information related to the event. The final step in the procedure is to test witnesses’ memory for the original event. Usually, some proportion of the witnesses given misleading information will report details consistent with that information on the memory test.

One interpretation of these results is that Misled witnesses sometimes commit a “source monitoring error” (Lindsay, 1990, 1994; Lindsay & Johnson, 1989; Zaragoza & Lane, 1994, 1998). That is, a memory derived from one source (the postevent information provided by the experimenter) is misattributed to another source (the witnessed event) or is attributed to both sources.
Such an error can occur even if the postevent information clearly refers to a separate incident rather than the witnessed event, at least as long as the two accounts are semantically similar and contain similar details (Allen & Lindsay, 1998).

This interpretation is based on the work of Johnson and her colleagues (see Johnson, Hashtroudi, & Lindsay, 1993), who proposed that memory representations include perceptual, contextual, emotional, and semantic information that reflects the nature of the encoding environment and that may be used by the rememberer to determine the source of a memory. Source attributions are usually made swiftly and without conscious awareness, although systematic or strategic processes, such as judging whether a source attribution seems plausible in light of other knowledge, may also be used (Johnson et al., 1993; Lindsay, 1994). Many times the attribution will be accurate. Sometimes, however, errors will occur, especially if the source cues are not clearly remembered, if the cues related to two different memory sources are similar, or if the source attribution is made hurriedly.

The source monitoring framework can explain how witnesses might confuse information provided to them by two different external sources (the witnessed event and the experimenter). But if a witness deliberately reports false information when asked about a witnessed event, we might say that the witness, rather than the experimenter, has supplied the misinformation. Might witnesses subsequently make source monitoring errors in this situation, even though they generated the misinformation themselves, and even though they knew all along that the misinformation was inaccurate? Such errors would actually be a type of source misattribution called “reality monitoring errors”, or errors in discriminating memories of externally generated information from memories of internally generated information (Johnson et al., 1993; Johnson & Raye, 1981; Mitchell & Johnson, 2000).

Numerous studies have shown that sometimes people confuse memories of imagination with memories of reality. Furthermore, reality monitoring errors become more likely if the characteristics of an internally generated memory and those of an externally generated memory overlap greatly. For example, if the memory of an imagined event happens to contain many sensory details and/or much spatial, temporal, and affective information, a person might believe that he or she actually experienced this event. Among the results illustrating reality monitoring errors is Johnson, Foley, and Leach’s (1988) finding that participants who hear a confederate say some words and imagine that confederate saying other words may be unable to determine whether a particular word was actually heard or merely imagined. In another study, participants’ estimates of the number of times they had seen a picture increased with the number of times that they had imagined the picture, especially for participants who were classified as “good imagers” (Johnson, Raye, Wang, & Taylor, 1979).

Other research shows that when adults imagine in detail childhood events that they initially said they probably never experienced, their confidence that the events actually occurred inflates (Garry, Manning, Loftus, & Sherman, 1996). Similarly, adults instructed to create mental images of fictitious childhood events sometimes eventually “remember” these events (e.g., Hyman & Pentland, 1996; Porter, Yuille, & Lehman, 1999). Hyman and Pentland suggested that the process of imagining a false event may lead to the creation of plausible and vivid details connected with the event, which in turn increases the chance of a reality monitoring error. This hypothesis meshes with the finding that inducing witnesses to visualise a postevent narrative enhances the misinformation effect (Carris, Zaragoza, & Lane, 1992, as cited in Lindsay, 1994).

Imagining never-experienced events can also affect children. Ceci and colleagues have conducted several studies in which preschool children were asked to visualise an event (such as getting a finger caught in a mousetrap) that, according to their parents, never happened (for a review, see Ceci, 1995). After visualising the event repeatedly, many of the children eventually described it in detail as if they remembered it.

In some of the studies just mentioned (Carris et al., 1992; Garry et al., 1996; Hyman & Pentland, 1996; Porter et al., 1999), the participants may have believed that the event they visualised actually occurred or that the details they imagined were accurate. But in other studies, participants sometimes confused imagined events with reality even though they knew with certainty that the imagined events were not “real” when they imagined them (Johnson et al., 1988; Johnson et al., 1979). Clearly, a witness who deliberately lies about an observed event is also aware that the details he or she is inventing are false. One could hypothesise that the memory representation of deliberately fabricated information differs from the representation of imagined information in that the former includes
an explicit indication that the details are counterfactual, whereas merely imagined details could be encoded as "plausible". Another possibility is that a person might maintain a memory of the cognitive operations that were used to generate the fabricated information, and this memory would help the person discriminate a lie from the truth. Both hypotheses imply that witnesses who deliberately fabricate should be unlikely to confuse the details they generate with reality. But there may be reasons to predict otherwise, as discussed later.

In many studies of deception, participants have been asked to lie about their attitudes or emotional reactions (e.g., DePaulo, LeMay, & Epstein, 1991; DePaulo & Pfeifer, 1986; Ekman, Friesen, O’Sullivan, & Scherer, 1980; Ekman & O’Sullivan, 1991; Ekman, O’Sullivan, & Frank, 1999) rather than about an event they witnessed, although there are exceptions (e.g., Hernández-Fernaud & Alonso-Quecuy, 1997). Often, the purpose of the research is to identify behavioural or paralinguistic cues associated with deception and/or to test observers’ ability to distinguish deceptive statements from truthful ones. In polygraph studies, participants are commonly asked to lie about a mock crime (e.g., Bradley, MacLaren, & Carle, 1996; O’Toole, Uille, Patrick, & Iacono, 1994; Podlesny & Truslow, 1993). But in such research “lying” typically entails giving deceptive answers to yes/no questions or deliberately choosing false alternatives to multiple-choice questions (e.g., Did the killer get the weapon from his pocket, behind the door, the window ledge, the cabinet, or the table?). In other words, these participants may falsely indicate that details supplied by the interviewer are true, but they generally do not invent false details.

One issue that is relevant to questions regarding witnesses’ memories of their fabrications about witnessed events concerns the mental effort involved in creating a lie. In their review article DePaulo, Stone, and Lassiter (1985) noted that several findings point to the conclusion that it is cognitively demanding to lie, and they explain that “presumably it is more difficult to fabricate a plausible and convincing lie that is consistent with everything the [individual] knows or might find out than it is to tell the truth” (p.338). Although many researchers endorse this position (Greene, O’Hair, Cody, & Yen, 1985; Vrij, Semin, & Bull, 1996), not all do. McNernack (1997) argues that lying is not necessarily harder than telling the truth, but he agrees that “bold-faced lies” (as opposed to communications that are a mixture of truths and falsehoods) probably do require more effort than “bold-faced truths”. Furthermore, it is surely more cognitively demanding to lie by inventing plausible event details in a situation in which one is motivated to succeed in convincing the listener, than it is to lie by assenting to a question and perhaps withholding the truth in a situation in which one is not particularly concerned about getting caught (as when a friend says, “I look pretty good in this shirt, don’t I?”).

Does inventing false information about an event affect subsequent memory for that event? One intriguing possibility is that the act of fabricating may impair memory for accurate information. This result could occur if the cognitive demands of the deception task prevent witnesses from rehearsing the actual details of the event, making these details subsequently less available in memory than they would have been if rehearsal had occurred. A different reason to expect this result is that retrieving certain information (or misinformation) in response to a cue not only increases the chance that this information will be retrieved again the next time the same cue is presented, but also blocks access to other information (Lindsay, 1990; Raaijmakers & Shiffrin, 1981; Schreiber & Sergent, 1998).

A second possibility is that, if deceptive witnesses try hard to invent plausible, realistic (and probably perceptual) details that are consistent with other knowledge they have about the event, then these details may be easy to confuse with actual details. In other words, over time witnesses may become unsure which details they invented and which really happened, and they may even come to believe that some of the invented details are real, and vice versa. Such a result would be consistent with the reality monitoring framework and previous findings that people sometimes confuse real and imagined events (Johnson et al., 1988; Johnson et al., 1979).

Apparently, only a pair of published studies have examined the impact of fabrication on memory: one conducted by Ackil and Zaragoza (1998), which was based on earlier unpublished research by Mitchell, Zaragoza, Ackil, Chambers, and Lane (1996), and another by Zaragoza, Payment, Ackil, Drivdahl, and Beck, 2001.1 Ackil and...

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1 In another relevant study, Christianson and Bylin (1999) did not instruct participants to fabricate, but they found that simulating amnesia by withholding details about a crime during initial questioning impaired subsequent memory for details. The authors attributed this result to a relatively low level of rehearsal of event details.
Zaragoza showed a clip from a Disney film about some boys at a summer camp to three groups of students: first graders, third and fourth graders, and college students. Immediately afterwards, the students were asked to remember information from the film clip. Some of the questions were what the authors called “true event” questions, because they were straightforward and asked about events that were actually presented in the film. Others were “false event” questions, which asked for details that had not been given. For example, “Where was Delaney bleeding?” was a false event question because the film showed that character falling but not hurt or bleeding. Control participants were instructed to respond only to the questions to which they knew the answers. On the other hand, participants in the “Forced” condition were told to provide an answer to each question and to guess if necessary. Thus, these participants were forced to fabricate answers to the false event questions.

One week later, the participants were asked to sort out what had happened in the film and what had not. Of particular interest are the Forced condition participants’ attributions about their responses to the false event questions. The college students incorrectly attributed about 17% of their confabulated responses to the film. The children performed even worse (over one third of the third and fourth graders and over half of the first graders made this error). The researchers interpreted these results using the source monitoring framework. In follow-up research, Zaragoza et al. (2001) showed that confirmatory feedback given during the initial interview increased the probability of incorrectly attributing confabulations to the film 1 week later as well as the probability of reporting confabulations during free recall 4–6 weeks later.

In both studies the authors wanted to simulate “investigative or therapeutic contexts” (Ackil & Zaragoza, 1998, p.1359) in which witnesses (especially children) might “find themselves pressured to produce responses to questions about witnessed or experienced events, even if they have no memory for the requested information” (p.1358). In contrast, the present research was designed to approximate a situation in which a witness to a crime intentionally provides misinformation to the police. To this end, some witnesses deliberately invented a false description of a “robber” that they saw. In real-world cases, a witness might give police a false description of a criminal if he or she is an accessory or a friend of the perpetrator, or if the witness has been threatened not to reveal the perpetrator’s identity. By asking participants to distort details they observed (as opposed to creating new ones that never existed), one can test the hypothesis that fabricating impairs memory for correct details. To examine this hypothesis, participants must eventually take a memory test in which they honestly try to remember accurate information. In real-world situations, witnesses who fabricate might later find that they need to recall the truth. They might decide to confess, perhaps out of fear that investigators will discover what happened anyway or because they have been offered a deal in return for cooperation. Alternatively, they might want to tell a friend or relative what occurred (for example, to enlist that person’s help in concealing the truth), or they might have some reason for wanting to remind themselves of the actual details.

The present research included two experiments in which witnesses watched a videotape depicting an armed robbery in a business establishment. Immediately afterwards, witnesses in most conditions were interviewed about what they saw in the video, including the appearance and behaviour of both the male perpetrator and the female clerk (some witnesses in Experiment 1 were not interviewed; they represented a control group that did not rehearse observed details after watching the stimulus event). Some witnesses were instructed to invent a false description of the perpetrator during the interview, and some invented a false description of the clerk (Experiment 1) or provided false details about the perpetrator by reading responses that had been prepared and written out for them (Experiment 2). Other witnesses were told to answer every question as accurately as possible. One week later, all witnesses were given a memory test for the details presented in the video. Regarding Experiment 1, it was predicted that, compared to witnesses who told the truth and those who fabricated about the clerk, the witnesses who generated false details about the perpetrator would report fewer correct details and more incorrect details about him on the memory test. Furthermore, the performance of the non-interviewed witnesses was expected to clarify whether the effects of fabrication occur because deceptive witnesses are denied the opportunity to rehearse accurate information. The complete rationale and predictions for Experiment 2 are presented later.
**EXPERIMENT 1**

**Method**

*Participants.* The participants were 123 introductory psychology students at a Midwestern US university who were partially fulfilling a course requirement. They ranged in age from 18 to 37 years (\(M = 20.15, \ SD = 3.03\)). Most were White (86% identified themselves as White, 12% as Black, and 2% as Asian American), and 63% were female. The participants were tested individually.

*Materials and procedure.* Data were collected during two separate testing sessions. Upon arrival at the first session and after signing an informed consent form, the participants were told that they would watch a brief videotape on a television monitor and to pay close attention. The videotape, which ran for approximately 2 minutes, had no soundtrack but used images to depict a robbery at a hair salon. After several scenes that showed a customer sitting in the waiting area and a female clerk working behind a counter, a dark-haired man (the target character) entered carrying a handgun. He was White, of medium height and build, and clean-shaven. He wore a black T shirt under an unbuttoned, short sleeve blue, long-sleeved cotton shirt, as well as faded blue jeans, white athletic shoes, and a navy blue New York Yankees baseball cap. He approached the receptionist and spoke to her, and she handed him some cash. He took the cash, left the building, and fled the scene in an automobile. By viewing the videotape, the participants played the role of witnesses to a robbery.

At this point, the witnesses were randomly assigned to one of four conditions. Those in the No Rehearsal (\(n = 29\)) condition spent the next 5 minutes completing a filler questionnaire about campus housing options. The goal was to prevent these witnesses from rehearsing the details of the robbery they had observed. After they had finished the task, they were thanked and dismissed from the first testing session.

The witnesses in the other three conditions were informed that they would be interviewed about what they had seen on the videotape, including the physical appearance of both the clerk and the robber and the behaviour of each. As one means of leading them to believe that others might evaluate the statements they made during the interview, they were told (correctly) that the interview would be audiotaped and videotaped.

Witnesses in the Target Fabrication condition (\(n = 33\)) were instructed to answer all interview questions as accurately as possible except any questions that asked about the appearance of the robber (he was referred to during the interview as “the man”, never as “the robber”); they were told to invent a false description in response to these questions. Furthermore, the witnesses were told that their goal was to make their answers convincing, so that someone watching the videotaped interview would believe that the fabricated information actually described the robber. The purpose of this instruction was to reinforce the illusion that the witnesses’ statements would be evaluated by others as a means of inducing them to provide false descriptions that they considered credible.

Witnesses in the Clerk Fabrication condition (\(n = 32\)) were given the same instructions, except that they were to provide a false description of the clerk. All other questions, including those concerning the robber’s appearance, were to be answered as accurately as possible. This condition was included so as to separate the effects of fabricating about the target individual specifically from the effects of fabricating in general.

Finally, witnesses in the Truth (\(n = 29\)) condition were instructed to answer all questions accurately. Like the witnesses in the other two conditions, they were told to describe what happened in a credible way, so that someone watching the videotaped interview would believe that their reports correctly described what happened.

Immediately after the witnesses had received their instructions, the experimenter turned on a tape recorder and a video camera that captured the seated witnesses from the waist up, and the interview began. The witnesses were asked some general questions about the type of business establishment in which the videotaped story took place and what kinds of activity occurred before the robber entered. Then they were asked to provide descriptions of both the clerk and the robber. Specifically, witnesses were asked to describe each character’s physical features, including race, height, body build, hair colour and length, and age. The witnesses were also given the opportunity to report any other features such as tattoos, scars, or birthmarks. Additionally, questions were asked about each character’s clothing, including the colour and
style of their shirts and trousers as well as any other accessories the witnesses may have noticed, such as shoes, headgear, jewellery, or glasses. At the conclusion of the interview, witnesses were asked what, if anything, the man was carrying in his hands when he entered the hair salon, what he was doing there, and what kind of vehicle he used to leave the scene. When the interview was over, the witnesses were thanked and dismissed.

The second testing session took place 7 days after the first, except that four witnesses were tested 8 days later due to scheduling conflicts. During the second testing session, the witnesses completed a written questionnaire that asked about their memory for information presented in the videotape. The experimenter emphasised to the witnesses that they should answer all of the questions as accurately as possible and that they were being asked to remember what they had observed, not what they had reported in the interview a week earlier. Highlighted instructions printed on the questionnaire reiterated this point. The questionnaire contained mostly open-ended items, along with a few multiple-choice questions, which asked for essentially the same information as requested during the interview, including what the clerk and robber looked like. An example of a multiple-choice question is one that asked about the clerk’s race and offered options of White, Black, Asian American, and Hispanic/Latina. For the open-ended questions, witnesses were encouraged to elaborate as much as possible, and the number of details they reported was limited only by their memory. For example, witnesses were asked about the robber’s shirt. One witness might correctly state that it was long-sleeved. Another might report this detail as well but add that the shirt was a “button-up” type and that it was not tucked into the robber’s trousers. A third witness might go even further, specifying that the shirt was unbuttoned and that a black T shirt was visible underneath it. Note that with the multiple-choice items there is necessarily a trade-off between the amount of correct and incorrect information given; if a question is answered correctly, it cannot also be answered incorrectly, and vice versa. However, there is no such trade-off with the open-ended questions. A witness might provide a few correct details but no incorrect ones, no correct details and many wrong ones, or numerous details of each type. After filling out the questionnaire, the witnesses were thanked and debriefed.

Results

The questionnaires were scored by two independent judges who counted both the number of correct details and the number of incorrect details reported by each witness about the target and about the clerk. Interrater reliability was high (for a sample of 60 scores, $r = .98$). Disagreements about scoring were resolved through discussion.

Correct details remembered. A one-way analysis of variance indicated that witnesses in the four fabrication conditions differed significantly in terms of the number of correct details about the target that they remembered, $F(3, 119) = 8.73, p < .001$ (see Figure 1). A Newman-Keuls post hoc test clarified that a similar number of correct details was remembered by witnesses who fabricated about the target ($M = 10.42, SD = 2.83$) and those who did not rehearse ($M = 10.90, SD = 2.78$). These two groups reported fewer correct details than did witnesses who fabricated about the clerk ($M = 12.72, SD = 3.23$) and those who told the truth ($M = 14.17, SD = 3.94$). The latter two groups did not differ from each other.

The four groups also differed in the number of correct details they remembered about the clerk, $F(3, 119) = 5.11, p = .002$. Witnesses who fabricated about the clerk listed about as many correct details about her ($M = 7.00, SD = 2.30$) as did No Rehearsal witnesses ($M = 6.59, SD = 2.75$). Moreover, each of these groups remembered fewer correct details than did witnesses in the other conditions (Target Fabrication $M = 8.73, SD = 2.66$; Truth $M = 8.41, SD = 2.57$).

![Figure 1](image.png)

Figure 1. Experiment 1: Mean number of details about the target character reported by witnesses in the Target Fabrication, Clerk Fabrication, Truth, and No Rehearsal conditions. Correct details are plotted on the left Y axis, and incorrect details are plotted on the right Y axis.
Incorrect details reported. The number of incorrect details reported about the target varied across fabrication conditions, as shown in Figure 1, $F(3,119) = 3.10, p = .03$. A Newman-Keuls test revealed that witnesses who fabricated about the target reported more incorrect details ($M = 3.70, SD = 1.91$) than did truthful witnesses ($M = 2.48, SD = 1.60$) and those who did not rehearse ($M = 2.59, SD = 1.45$). The mean number of details remembered by witnesses who fabricated about the clerk ($M = 3.13, SD = 2.03$) fell between the other means and did not differ from them.

Because this significant difference was obtained, the incorrect details reported by witnesses who fabricated a description of the target were examined more closely. One goal was to determine whether some of these incorrect details were ones that the witnesses had invented during their earlier interview. It turned out that, on the average, 27% of the incorrect details listed on the questionnaires had been “carried over” from the interview; of these details, 69% referred to the target’s clothing (e.g., colour or type), 28% referred to his physical features (e.g., height or age), and 3% referred to his behaviour while in the business establishment. When completing the questionnaire, witnesses seldom “remembered” the more unusual or distinctive details that they occasionally invented during the interview, such as a large tattoo that covered the robber’s entire arm or a Mexican-style sombrero.

Another goal was to address the possibility that, if a witness invents a particularly realistic, plausible description during the interview, he or she will be more likely to confuse details from that description with actual details than if the invented description is not very realistic or plausible. Two judges (not the same individuals who scored the memory questionnaires) used a 7-point scale to rate the believability of each of the 33 descriptions provided by witnesses who fabricated about the target. Higher numbers on this scale indicate greater believability. Ratings made by the arbitrarily designated primary judge were entered into the analysis described later. Ratings made by the secondary judge were obtained only for assessing interrater reliability ($r = .80$).

There was a significant, positive correlation between the believability of the fabricated descriptions and the number of fabricated details carried over to the questionnaire, $r = .367, p = .036$. One possible interpretation of this result is that the reason some fabricated descriptions seemed more believable to the judges is that they included many details, and providing many details in a description increases the likelihood that the witness will report some of them on the subsequent memory test. However, the believability ratings were not significantly correlated with the total number of details in the fabricated descriptions, $r = .253, p = .155$. Therefore, a better interpretation is that some descriptions were more plausible because of the quality, not quantity, of the details included; furthermore, the more realistic a fabricated description is, the more likely the witness is to include details from that description in his or her memory report.

Regarding the number of incorrect details about the clerk, there was a difference that approached significance, $F(3,119) = 2.57, p = .057$. Witnesses who fabricated about the clerk reported somewhat more incorrect details about her ($M = 5.31, SD = 3.73$) than did witnesses who fabricated about the target ($M = 3.76, SD = 2.72$), those who told the truth ($M = 3.86, SD = 2.08$), and those who did not rehearse ($M = 3.72, SD = 1.62$).

Discussion

To summarise the main results, it was found that witnesses who fabricated details about the target character reported less correct information and more incorrect information about him on a subsequent memory test than did truthful witnesses. Witnesses who fabricated about another character, however, did not describe the target significantly less accurately than did truthful witnesses. Taken together, these findings suggest that, although the act of fabricating per se does not impair subsequent memory performance, generating false answers to questions that will be asked later does.

In some ways the results are similar to ones obtained in typical studies of the misinformation effect. In those studies, however, the misinformation is provided by the experimenter, not generated by the witness. Additionally, witnesses in those studies might not realise, at the time that they encounter the misinformation, that it is inaccurate. Is there a difference between a situation in which the witness knowingly generates false information and a situation in which the experimenter provides information that the witness knows is false? The following experiment addresses that question. (Further interpretation of
the Experiment 1 data is deferred until the General Discussion.)

EXPERIMENT 2

Witnesses in Experiment 1 who fabricated information about a target person subsequently exhibited more errors when trying to remember the target than did witnesses who fabricated about a non-target person or witnesses who tried to provide accurate information. Although these results imply that generating false information impairs memory for observed details, it may be that this impairment is small when compared to the effect of misinformation supplied by someone else. People usually remember self-generated information better than information generated by others (Slamecka & Graf, 1978; Wagner, 1984), and perhaps the former kind of item is coded as internally created. Furthermore, it is possible that people can more easily distinguish internally generated from externally generated information than they can determine which of two external sources produced certain information. On the other hand, studies of cryptomnesia have shown that people sometimes inadvertently take credit for items produced by someone else or plagiarise themselves by supplying previously generated information when asked to create a new item (Brown & Murphy, 1989; Macrae, Bodenhausen, & Calvini, 1999; Marsh & Bower, 1993). Moreover, if a fabrication is “constructed within the constraints of an individual’s idiosyncratic knowledge and beliefs, the content of the made-up account may later be perceived by the remembering as especially plausible and real” (Ackil & Zaragoza, 1998, p.1359).

To address this issue, Experiment 1 was repeated using a condition in which some witnesses provided a false description of the target during the interview by reading answers that had been prepared for them. This condition allows for comparison of the effects of self-generated misinformation to the effects of experimenter-generated misinformation. It is important to note that witnesses in this condition were told that the prepared information was inaccurate, which is not the case in typical experiments on the effects of misinformation. Therefore, this condition approximates a situation in which a witness chooses to repeat to investigators false information that he or she heard from someone else, or a situation in which a witness is instructed or forced by someone to relay certain deceptive details to investigators.

Another methodological difference between Experiments 1 and 2 is that the memory questionnaire used in the latter included more specific questions about the target’s appearance. The purpose of adding these questions was to enhance the sensitivity of the memory test.

Method

Participants. The participants were 112 introductory psychology students enrolled at the same university as in Experiment 1 who partially fulfilled a course requirement by participating. Their ages ranged from 18 to 36 years ($M = 19.66$, $SD = 2.83$), and 56% were female; 85% were White, 7% were Black, 3% were Asian American, 2% were Hispanic, and 4% selected another category when asked to report their race. The participants were tested individually.

Materials, procedure, and design. The general procedure was the same as in Experiment 1. Data were collected during two separate testing sessions. During the first session, participants were given the same initial instructions and watched the same videotape as in the first experiment. Before being interviewed, they were assigned randomly to one of three conditions. Two of these conditions were the same as in Experiment 1; these were the Target Fabrication ($n = 36$) and Truth ($n = 38$) conditions. However, the third group did not invent a false description of the clerk. Instead, they responded to the interview questions about the robbery by reading answers that had been prepared and written out for them. These answers, which were based on typical responses given by Target Fabrication participants in Experiment 1, contained false details about the robber’s appearance (see Appendix). Thus, participants in this Prepared Fabrication condition ($n = 38$) provided false descriptions of the target, as did the Target Fabrication participants, but instead of generating their own fabrications, they reported false material that had been created for them. The purpose of including this condition was to allow comparison of the effects of witness-generated fabrication to the effects of experimenter-generated fabrication. All participants were told that they should answer the interview questions in a credible way, so that someone evaluating their statements by listening...
to the audiotaped interview would believe that the information they provided was accurate.

The participants returned for the second testing session 7 days after the first, except that two participants returned 8 days later and one returned 6 days later because of scheduling conflicts. During this session participants completed a written questionnaire asking them to remember descriptive information about the target, as shown on the videotape (they were not asked to remember the clerk). Both verbal and written instructions stressed that participants should report only details they remembered from the video, regardless of what they had said during the interview. Compared to the questionnaire used in Experiment 1, the Experiment 2 questionnaire included a greater number of specific items about the target’s appearance. For example, after completing other questions about the target’s clothing, Experiment 1 witnesses were given an opportunity to report any other clothing they remembered but had not been asked about specifically. If they remembered his shoes, they could describe them at this point. In contrast, the Experiment 2 questionnaire contained an item asking specifically whether the target was wearing shoes, and if so what they looked like.

Results

As in Experiment 1, two judges independently scored the questionnaires. For each questionnaire, they counted both the number of correct details and the number of incorrect details reported about the target. Interrater reliability was high; for a sample of 60 scores, \( r = .99 \). Disagreements were resolved through discussion.

Correct details remembered. As shown in Figure 2, the number of correct details in the descriptions of the target varied across conditions, \( F(2,109) = 5.92, p = .004 \). A Newman-Keuls test showed that truthful witnesses reported more correct details (\( M = 21.42, SD = 3.53 \)) than did either those who fabricated a description (\( M = 19.67, SD = 2.80 \)) or those who read a fabricated description (\( M = 18.68, SD = 4.05 \)).

Incorrect details reported. The fabrication manipulation also affected the number of incorrect details, \( F(2,109) = 5.21, p = .007 \) (see Figure 2). A Newman-Keuls test indicated that truthful witnesses reported fewer incorrect details about the target (\( M = 4.74, SD = 2.58 \)) than did either witnesses in the Target Fabrication (\( M = 6.39, SD = 2.49 \)) or the Prepared Fabrication conditions (\( M = 6.68, SD = 3.33 \)).

As in Experiment 1, the incorrect details reported by witnesses in the Target Fabrication condition were inspected, in part to discover how many of these details were ones that the witnesses had concocted during the interview. Of the incorrect details given on the questionnaires, 37% (on average) had been carried over from the interview. Furthermore, of the carried-over details, 58% referred to the target’s physical features, 39% referred to his clothing, and 3% referred to his behaviour.

The amount of carryover in the Prepared Fabrication condition was also examined. Of the incorrect details reported by these witnesses on the questionnaire, 56% (on average) were part of the fabricated description read by the witnesses during the interview; this amount of carryover is greater than in the Target Fabrication condition, \( t(72) = 4.12, p < .001 \). Most of the details carried over by Prepared Fabrication witnesses referred to the target’s physical features (54%) or clothing (44%), and 3% referred to his actions.

Next, the possible correlation between the realism of the fabricated descriptions and the number of incorrect details carried over to the questionnaire was investigated. Two judges (the same ones who performed this task in Experiment 1) rated the believability of the 36 descriptions created by Target Fabrication witnesses, using a
7-point scale on which higher numbers indicated more believability. Interrater reliability was high ($r = .81$). Using ratings made by the arbitrarily designated primary judge, a positive correlation was found between the rated believability of the fabricated description and the number of invented details that were carried over from the interview to the questionnaire, $r = .369$, $p = .027$. As in Experiment 1, the believability ratings were not significantly correlated with the total number of details in the descriptions ($r = .280$, $p = .098$) and probably depended instead on the plausibility of the details.

**Discussion**

The main results of Experiment 2 were that both witnesses who generated false descriptions of the target character and witnesses who read false descriptions reported fewer correct details and more incorrect details than did truthful witnesses on the subsequent memory test. It is interesting that the effects of reading the experimenter-generated fabrication were comparable to the effects of generating a fabrication, even though the cognitive task for the two groups differed. On the memory test, the Target Fabrication witnesses had to distinguish externally generated information from internally generated information. These witnesses were vulnerable to errors that can be considered examples of confusing imagination with reality. In contrast, the Prepared Fabrication witnesses were trying to distinguish information that came from two different external sources, which can also be a difficult task (Johnson et al., 1993). It is true that the Prepared Fabrication witnesses were more likely than Target Fabrication witnesses to carry over to the memory test false details that they made up during the interview, perhaps because the latter witnesses maintained at least some memory of the cognitive operations they used during the process of inventing false details and elaborating upon them. Alternatively, the prepared fabrication could have contained more plausible details than the typical witness-created fabrication, which could have led to more confusion between real and fabricated details and thus more carryover in the Prepared Fabrication condition. In any event, in terms of the accuracy of their memory reports, witnesses who generated a fabrication had no advantage (or disadvantage) compared to those who presented to the interviewer a fabrication that had been supplied to them by someone else.

In comparing the performance of the witnesses who fabricated about the target in Experiment 2 to witnesses in the same condition in Experiment 1, one finds parallel results: In both studies those witnesses reported fewer correct details and more incorrect details than did the truthful group. Thus, the second set of findings replicated the first. However, one difference between witnesses’ scores in the two experiments is that witnesses in Experiment 2 generally reported more correct and incorrect details than did Experiment 1 witnesses. This difference can be attributed to the greater number of questions asked in the second experiment compared to the first.

**GENERAL DISCUSSION**

The results of the two experiments suggest that inventing a false description of a person (or giving an interviewer a false description that was invented by someone else) decreases a witness’s ability to remember accurate details about that person. How could reporting false information impair subsequent memory for correct information? One possibility is a sort of retrieval blocking hypothesis. This hypothesis can be illustrated by Schreiber and Sergeant’s (1998) finding that misled witnesses who selected an alternative on a recognition test that was consistent with the misinformation they had been given, tended to perform more poorly than control witnesses on a final memory test (see also Lindsay, 1990). Schreiber and Sergeant used a retrieval blocking hypothesis to account for their results, proposing that retrieving misinformation in response to a particular cue not only increases the chance that the misinformation will be retrieved again the next time the same cue is presented, but also blocks access to the correct information. The authors linked this explanation to interference mechanisms in models of long-term memory (e.g., Raaijmakers & Shiffrin, 1981). When applied to the current results, the retrieval blocking hypothesis would state that the act of generating false information in response to questions about the robber’s appearance interferes with access to the accurate description stored in the witness’s memory.

An alternative explanation, which is not incompatible with the retrieval blocking hypothesis, is that the witnesses who fabricated had less opportunity than truthful witnesses to rehearse the correct details (see Christianson & Bylin, 1999). By reporting correct information during the
interview, truthful witnesses essentially engaged in rehearsal of that information, but those who fabricated could not reprise this way. Moreover, if creating a convincing false description is effortful, few cognitive resources would have remained available for simultaneous, covert rehearsal (DePaulo, 1992; DePaulo et al., 1985; Greene et al., 1985; Vrij et al., 1996). This explanation fits nicely with the Experiment 1 results that the witnesses who fabricated and those who did not reprise remembered approximately the same number of correct details.

Schreiber and Sergent (1998) also reported that passively reading misinformation had a less detrimental effect than reading it and then retrieving it from memory in order to complete a recognition test. In the present research, however, witnesses who read a prepared fabrication did not reprise more correct details than did witnesses who generated their own fabrications. This difference in results can possibly be explained by pointing out that the Prepared Fabrication witnesses probably did not simply passively read the fabrication given to them. They were instructed to present the false description in a convincing manner, so that someone listening to the audio-taped interview would believe in its authenticity. This instruction may have caused the witnesses to think more deeply about the fabricated description and perhaps to visualise the information. In addition, the witnesses may have suspected that they might be asked to repeat the false description of the robber and would need to remember it for future reference (real-life witnesses who fabricate face this same concern).

Some other findings in the present study involve inaccurate information reported by the witnesses. First, witnesses who fabricated a description about the target later remembered more incorrect details about him than did truthful witnesses. It was not fabrication per se that produced this effect, but rather fabrication about the target specifically. Additionally, the effect did not occur because the deceptive witnesses failed to rehearse the correct information; the No Rehearsal witnesses in Experiment 1 performed better than did those who fabricated. Finally, witnesses who fabricated a description later included some of the fabricated details when asked to remember an accurate description. These results probably reflect reality monitoring errors. Previous research has demonstrated that people sometimes confuse internally generated and externally generated memories (Johnson et al., 1988; Johnson et al., 1979), and the likelihood of confusion seems to increase if the individuals put forth a strong effort to visualise the internally derived information (Ceci, 1995; Garry et al., 1996; Hyman & Pentland, 1996; Porter et al., 1999). In the present study, witnesses may indeed have attempted to visualise the details they fabricated and incorporate them into the event as they remembered it in an attempt to generate a plausible description. This visualisation could have made the perceptual details of the invented description seem more vivid or realistic and could have led to the inclusion of some of these details in the final memory report. This hypothesis is supported by the finding that witnesses were more likely to “remember” details from fabricated descriptions that were rated as very believable than from less believable descriptions. Because they were consistent with the witnesses’ knowledge of the observed event, or because they were easy to imagine, details from believable descriptions may have been especially easy to confuse with accurate details.

Although the present research used methodology that differed from Ackil and Zaragoza’s (1998) and Zaragoza et al.’s (2001), the obtained results converge with those authors’ demonstrations that witnesses who confabulate sometimes misattribute their confabulations to the observed event. Do witnesses who fabricate truly believe that misattributed details were actually part of the event they observed? Ackil and Zaragoza thought so; they concluded that their participants who confabulated “came to misremember as real some of the details they had knowingly confabulated” (p.1367). It seems likely that witnesses in the present study did the same, as the instructions for the final memory test clearly specified that they should report only details that accurately described the target character, not false details that they had concocted. If this is indeed what happened, then one could conclude that, in a sense, a lie can sometimes “become” the truth.

The effects of fabrication that were seen in the present research could also be seen in actual forensic situations, where it is common for investigators to encounter deceptive witnesses (Fletcher, 1991). In fact, there are some reasons to expect that the effects might even be more pronounced in real-life settings. One reason is that real witnesses are often asked to repeat their story multiple times, and with each repetition the original, accurate details could become less accessible, as
predicted by the retrieval blocking hypothesis. Also, unlike actual witnesses, those in the present study were given little opportunity to plan or practise their fabrications, which might have allowed them to visualise especially realistic details that would be more easily confused with the details they genuinely observed. Relatively, witnesses involved in a real police investigation would surely be more motivated to seem believable, and therefore they might try harder to create plausible details.

Further differences exist between the present study and real-world scenarios, and their effects are unclear. For example, actual witnesses might be older or less educated than the college students who participated in the present study, they would probably feel more anxiety as they lied to police investigators, and they might even be accused of lying by a detective, another witness, or someone else connected with the case. Additional research is needed to replicate the current data and identify variables that influence witnesses’ responses.

REFERENCES


APPENDIX

The script read by participants in the Prepared Fabrication condition in Experiment 2 as they answered interview questions that referred to the robber.

Q. Now I’m going to ask you about the man who came into the business establishment. What was his ethnic background: White, Black, Hispanic, Asian, or something else?
A. He had a dark complexion. I think he was Hispanic.

Q. Was he tall, short, or average height?
A. He was tall, over six feet.

Q. Was he thin, overweight, muscular, or did he have a medium build?
A. He was thin.

Q. What color was his hair?
A. His hair was black.

Q. How long was his hair? Was it shaved, so short that it was above the ears and collar, did it come over the collar, or was it so long that it came down over his shoulders?
A. It was pretty long, about to his shoulders, and it was straight, not curly.

Q. About how old was he?
A. Maybe in his early thirties, like 31 or 32.

Q. Did you notice any physical features that I haven’t asked about, such as tattoos, birthmarks, scars, or facial hair?
A. He had sort of a goatee. It looked like he had just started growing it. He also had a tattoo on his shoulder, I think his left shoulder. It was black, and it looked like a Chinese character.

Q. Now I’m going to ask you about the clothes the man was wearing. Please tell me what color and style they were. Starting with his shirt, was it long- or short-sleeved, and what was the color and style?
A. He was wearing a dark green, sleeveless T shirt.

Q. Was he wearing pants or shorts, and what color and style?
A. They were shorts. Tan colored cargo shorts.

Q. Can you describe anything else he was wearing, such as shoes, a hat, jewelry, eyeglasses, or any other clothing or accessories?
A. He had on sunglasses, and a gold hoop earring in one ear. No hat. I don’t remember the shoes.

Q. Was he carrying anything in his hands when he came into the business establishment?
A. Yes, an umbrella.

Q. What was the man doing in the business establishment?
A. He was making an appointment for a hair cut.