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Comparing Suggestive Interview Techniques and the Influence of a Warning in an Eyewitness Testimony Paradigm

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Abstract

This research explored any differences between suggestive interview techniques, where false information is provided to a witness (implanted information) compared to when a witness actually creates the false information him or herself (confabulated information). The present study also explored the extent to which a warning at the time of retrieval might impact the incidence of false memory. The results indicated that participants developed a comparable number of false memories for both implanted and confabulated information. Moreover, participants were able to provide more accurate responses to the source of their memory for an item if they confabulated it themselves, but this did not protect them against developing a false memory. Secondly, a warning protected participants from developing false memories, and was just as effective for implanted and confabulated items. Although a warning provided some protection against the development of false memories, it did not eliminate reports of false information.

Comparing Suggestive Interview Techniques and the Influence of a Warning in an Eyewitness Testimony Paradigm

Research has established that witnesses can be led to report certain details from a witnessed event, when in actuality the details never existed (Lindsay, Gonzales, & Eso in Zaragoza, Graham, Hall, Hirschman, & Ben-Porath, 1995). Such findings have emerged from suggestibility research that has focused primarily on false memory implantation whereby witnesses are told misinformation about a witnessed event and suggestibility is measured as the extent to which they report the misinformation provided. Yet, in a real world setting where investigators question witnesses, implanting misinformation is only one type of suggestive interview that might occur. In other instances, interviewers may attempt to draw out information from eyewitnesses about details or events that perhaps never occurred. That is, witnesses may be pressured by an interviewer to describe events they do not remember or that never transpired. Research has demonstrated that participants who find themselves in this situation may later develop false memories for the events they were knowingly forced to confabulate (Ackil & Zaragoza, 1998; Zaragoza, Payment, Ackil, Drivdahl, & Beck, 2001). Thus, forced confabulation, like memory implantation, can serve as a dangerous suggestive interview technique.

A core purpose of this research is to explore any differences between interviews where false information is provided to a witness (implanted information) compared to when a witness actually creates the false information him or herself (confabulated information). In addition, it is not clear to what extent a warning at the time of retrieval might impact the incidence of false memory following either type of suggestive interview. Thus, of interest here is, a) whether an

investigative interview procedure that forces a witness to verbally confabulate details to an event is more dangerous than an interview in which the misinformation is provided and, b) whether a warning at the time of retrieval will reduce the number of false memories reported by witnesses.

Why might the incidence of false memory vary with different suggestive interview techniques?

The literature suggests that information that is self-generated is, in many cases, more memorable than information that is provided by another source. In their now classic study, Slamecka and Graf (1978) demonstrated such a generation effect, using paired associates. In this research participants were presented with incomplete word pairs, such as "*rapid-f,"* and were required to generate, out loud, a synonym for the incomplete word. In another condition, participants were required to read, out loud, the same completed word pair, such as "*rapid-fast."* Slamecka and Graf found that across a variety of conditions, the participants remembered generated words significantly more often than the provided words. Similar generation effects have been demonstrated in more recent research as well (e.g. Chechile & Soraci, 1999; Soraci, Carlin, Toglia, Chechile, & Neuschatz, 2003).

It seems likely that people show better memory for generated items relative to those they read, in part because of the effort they must expend to come up with an item on their own. As evidence of this, Begg, Vinski, Frankovich, and Holgate (1991) found that participants remembered read items just as well as generated items if they read information in such a way that they encoded and processed items more deeply (e.g. imagined them). Such effortful processing may not only increase ones memory for the generated items, but may also serve as a cue to remind participants that the item was self-generated. According to the source monitoring framework, a memory includes not only the information to be remembered, it also includes a variety of characteristics that indicate the conditions under which a memory was acquired

(Johnson, Hashtroudi, & Lindsay, 1993). Johnson et. al. (1993) indicate that these characteristics include perceptual, contextual, and affective information, semantic detail, and cognitive operations all of which are the product of perceptual and reflective processes engaged in at the time of initial event encoding. At the time of memory retrieval people can utilize these characteristics to determine the origin or source of their memories.

Given that self-generated memories are the result of effortful processing, it seems reasonable to assume that they would include prominent characteristics (e.g. affective cues, cognitive operations) useful for identifying source later on. For example, Geghman and Multhaup (2004) found that participants were more accurate in identifying the source of generated answers than for items that they simply read. That is, they demonstrated a generation effect for both item memory and source.

Given their findings, it seems reasonable to expect that participants in the present study may be especially likely to remember that they themselves were the source of self-confabulated false details. Participants may remember themselves struggling to come up with an answer to a question (cognitive operations) and they may recall feelings of discomfort at having been coerced to make something up (affective processing). If this is the case, it seems likely that participants will remember that they were the source of the item, thereby decreasing their tendency to attribute the item to the witnessed event relative to items they are simply provided.

Alternatively, it is possible that the act of generating information about an event takes up so much cognitive processing that characteristics that would indicate the source of the information is not stored (Jurica & Shimamura, 1999). In their study, participants viewed computerized faces that either, 1) made a statement (e.g. “The type of music I like to listen to is jazz”), or 2) asked a question that required the participant to formulate an answer (e.g. “What

type of music to you like to listen to?"). Their results revealed a typical generation effect for item (item recall was enhanced if the participant generated an answer to a question versus if he or she read an answer), but a negative generation effect for source memory. In other words, participants were less accurate at identifying the face associated with information they had generated than information they read, which lead the researchers to conclude that was a tradeoff between processing the item information and processing the source information during encoding (Jurica & Shimamura, 1999). Such a trade off would suggest that participants in the present study may be more likely to recall confabulated items but less likely to remember that they were the source of the items. Assuming that the items one comes up with are likely to reflect one's own experiences, beliefs and knowledge, they may seem especially plausible and real later on and thus, more likely to be attributed to the witnessed event relative to items provided by someone else.

How will a "warning" at retrieval impact witnesses' memories?

A second purpose of this research is to explore the effectiveness of a warning manipulation as a part of a suggestive interview. Of interest is whether warning participants at memory retrieval that they were exposed to false information one week earlier will protect them from reporting the false information. The existing literature does not make clear predictions about the effects of a warning at retrieval. Furthermore, it is not clear whether warning participants will have the same consequences following memory implantation and forced confabulation.

On the one hand, warnings have helped individuals avoid reporting false information in some instances. For example, Chambers and Zaragoza (2001) demonstrated that warning participants that they may have been exposed to misinformation reduced suggestibility to the

implanted information if the warning occurred prior to exposure or shortly after exposure to the misinformation. In both warning conditions, Chambers and Zaragoza (2001) used a nonspecific warning, where the experimenter admitted to a confederate's claim that the participants were tricked and exposed to details that were not present in the witnessed event. Warnings at both points in time (pre- or post-exposure to misinformation) remained effective across two different exposure conditions: some participants were exposed to the misinformation once, whereas others were exposed to the same misleading item twice. However, neither type of warning completely eliminated false memory errors (Chambers & Zaragoza, 2001). Moreover, when there was a one-week retention interval between the exposure to the misinformation and the source test, the warned participants did not show a reduction in false memories relative to the no warning group unless the exposure to misinformation was repeated. If participants were exposed to a misleading item more than once, the warning was effective and fewer errors were reported. For purposes of the present research it is important to note that participants in Chambers and Zaragoza (2001) received an explicit warning that some of the information they heard may not have occurred in the witnessed event. Therefore, the "no warning" group actually did receive a warning of sorts, leaving unanswered, the question of how participants who receive no warning, at any point, will fare.

Research has also demonstrated that warnings provide little protection in some cases. For example, Greene, Flynn, and Loftus (1982) provided their participants with a nonspecific warning: they told the participants that they might have been exposed to inaccurate information in a short narrative they read after witnessing an event. In this study, the warning occurred shortly after presentation of the misleading, post-event information and prior to a five-minute interval before the recognition test. When warned in this way, participants had the same level of

accuracy on a recognition test as subjects who were not warned at all. Thus, in this case, warning the participants after exposure to misleading information did not reduce the incidence of false memories.

Eakin, Schreiber, and Sergent-Marshall (2003) also found that a warning introduced immediately before taking a recall test did not improve participants' accuracy when tested about event items. Importantly, Eakin et. al. (2003) used a specific warning, in which participants were explicitly told to disregard information that they read in a post-event narrative that included misleading items. Furthermore, Eakin et. al. (2003) found that the effectiveness of a warning depends on when it is presented and the accessibility of the misinformation. When a warning appeared immediately after exposure to the misinformation and prior to a retention interval, the warning was effective in reducing suggestibility at test when participants had been exposed to the misinformation once (low accessibility condition), but not when they were exposed to it twice (high accessibility condition). When the warning occurred after the retention interval, the warning was ineffective regardless of whether participants were exposed to misinformation once or twice. Eakin et. al. (2003) suggested that participants who are warned about the misinformation they were only exposed to once have a higher chance of suppressing the misleading details, and consequently, perform just as accurately on a memory test as the control group. On the other hand, if participants are exposed to the misleading information twice, they have a difficult time suppressing the misleading details, and thus, perform less accurately on a memory test than both the control group and low accessible information group. For the purposes of the present study, it is assumed that generating makes items more accessible than reading, and thus, will be less influenced by a warning.

Few studies have explored the manipulations, exposure to a warning and suggestive interview type (i.e. implanted misinformation versus forced confabulation), in one experiment. A study by Holliday and Hayes (2000) is an exception. After listening to a story, child participants (ages five and eight) were exposed to the misinformation in one of two ways: 1) the children received misleading information when the experimenter read the misleading items out loud, or 2) the experimenter read a sentence with the misinformation embedded as an incomplete word (word stem) and the children were required to generate the incomplete word. Immediately after listening to the post event narrative, the participants were given a recognition memory test. In one condition, participants were simply instructed to indicate whether or not they remembered the item without any warning, whereas in a second condition, participants were explicitly told to disregard the post event information because it was inaccurate. Overall, Holliday and Hayes (2000) found that participants were more likely to report misinformation in the group that was not warned to disregard post-event information. However, participants in this group were more likely to misremember misinformation they had generated than misinformation they had heard. Participants in the group that was warned were more likely to accept misled information that they heard than that which they had generated. It is important to note that there are several differences between the Holliday and Hayes (2000) study and the present work. For example, Holliday and Hayes (2000) tested children and did not include a one-week retention interval (between exposure to misinformation and test), whereas the present study tested adults and included a one-week retention interval. Additionally, the generate condition was not as demanding in the Holliday and Hayes (2000) work, as children were only required to complete word fragments; the present study forced participants to completely generate answers without any cues. Nevertheless, it seems reasonable to expect a similar interaction to occur in the present

study between the implant/confabulate and no warning/warning conditions. It is expected that participants will be more likely to remember and have fewer false memories for misinformation that was self-generated relative to misinformation that they read. More significantly, we may see an interaction between the two conditions, where participants in the warning condition may report fewer false memories if they confabulated the misinformation than if they read the misinformation.

In the present research, subjects were shown a short video segment. Immediately after watching the video, participants were interviewed. Each participant was exposed to both suggestive interview techniques during the interview, as they were provided with some responses (implanted technique) and were forced to knowingly fabricate some responses (confabulated technique). One week later, participants were administered a source memory test. Half of the participants were warned and told that they may have been exposed to false information, while the other half did not receive the warning. Of primary interest is, a) whether an investigative interview procedure that forces a witness to verbally confabulate details to an event is more dangerous than an interview in which the misinformation is provided and, b) whether a warning at the time of retrieval will reduce the number of false memories reported by witnesses.

Method

Participants and Design

A total of 136 Gustavus Adolphus College undergraduates participated. Participants were recruited from Introduction to Psychology courses and were awarded course extra credit points for participating. The experiment employed a 2 (confabulated or implanted information) by 2 (warning or no warning group) design with the first factor manipulated within participants and

the second factor manipulated between participants. 80 participants were randomly assigned to the warning condition and 56 participants were randomly assigned to the no warning condition.

Materials and Procedure

Phase I: Witnessed Event.

Participants entered the lab in pairs and signed a consent form. With two experimenters present, the participant pairs watched an eight-minute video clip from a Disney movie portraying a young boy's experience at summer camp. The lights in the lab remained on for each session to make the viewing conditions similar for each participant.

Phase II: Post-event Questioning.

Immediately after watching the video clip, the participant pairs were split up and were told that the experimenters were going to talk to each participant individually about the video. One participant remained in the room with a female experimenter, whereas the other participant was taken into another room with a different female experimenter.

As the cover story, each experimenter read instructions out loud to their respective participant. The experimenter told them that a study was conducted last year, where participants had watched the same video and had to answer several questions about it. The current participants were given an answer sheet with the answers that the past participants provided. They were told that the central task was to help the experimenter record the answers on audiotape and were instructed to follow along and read the answers out loud. However, as indicated by blank lines on the answer sheet, the past participants did not always provide a written response to every question. In those instances, the current participants were told that they had to provide an answer of their own. If they could not remember what had happened, they

were told that they should give their best guess, as an answer needed to be recorded for every answer.

All participants were required to answer fifteen questions about the video and all responses were audiotaped. An initial question asked the participant if they had seen the video before, and two other questions were about the character's names. The remaining questions were about events in the video and were asked in chronological order. Of the remaining twelve questions, each participant was asked about four false event questions. The false event questions were about events that obviously never occurred in the video. For instance, in the video Delaney fell off of a chair but was clearly not bleeding or hurt in anyway. However, as a false event question, some participants were asked, "After he fell, where was Delaney bleeding?" There were two sets of four false event questions. Participants were yoked so that one partner was asked one set of questions while the other partner was asked the alternate set. For the false event questions, each participant was forced to read answers (implanted items) to two questions and forced to generate answers (confabulated items) to two questions (see Table 1). Throughout the experiment, each question was asked and answered an equal number of times. Similarly, each question elicited either a generated or read response an equal number of times.

Additionally, the participants were asked about eight true event questions. True event questions were about events that clearly occurred in the video. For example, in the video, a snake was seen in one of the boats and several ladies jumped overboard but Delaney stayed in the boat. Thus, a true event question was, "Who was the only person who stayed in the boat with the snake in it?" For the true event questions, each participant was required to read answers to the same four true event questions. The remaining four true event questions varied across participants. Of

these, participants read the answers to two questions and were forced to generate answers to two questions.

After the questioning, the participants filled out a short questionnaire about their impression of the person who provided the responses to the questions. They were asked about the person's gender, year in college, level of creativity and responsibility, and if they would like to meet the person. This task was not important for the hypotheses, but aided in making the cover story more believable.

The participants were then told that the experimental session for that day was complete. They were instructed that they should not talk about the video or questions with anyone, and were reminded to return to the lab in one week to finish the experiment.

Phase III: Source Memory Test.

One week after the video and questioning, the participants returned for a source memory test conducted by a new experimenter. A different experimenter conducted the source memory test so that the participant was not in the awkward situation of pointing out any inaccuracies to the person who had forced them to be inaccurate and generate misinformation. Each participant was interviewed individually and the answers were audiotaped. Participants were randomly placed into one of two conditions: the warning condition (n = 80) or no warning condition (n = 56). Participants in the warning condition received a subtle warning that was used to indicate to the participant that some items that they were tested about in the prior week did not actually happen in the video. In the present study, the decision to place a warning after exposure to misleading items, after a one-week retention interval, and immediately prior to memory retrieval was for pragmatic reasons. In a real world context, a person would probably witness an event first, have exposure to misleading information (e.g. from the media or other witnesses) second,

and third, be interviewed by a law enforcement officer. A warning would most likely occur before the interview, as the officer would instruct the witness at this point in time to report details that happened in the witnessed event and to disregard information that he or she had heard other sources, since it could be contaminated with false details.

Each experimenter read instructions out loud to each participant immediately before the source test. The instructions in the warning condition included the following:

> **Some of the questions and answers you recorded with (experimenter's name) one week ago referred to things that never actually happened in the video.** I'm going to ask you about several items and for each item I'll ask you two questions, first, whether you remember seeing the item in the video, and second, whether you remember the item coming up when you made the recording with (experimenter's name). You should also rate your confidence in your answers using this confidence scale (experimenter gave the participant a visual aid of the confidence scale).

The instructions in the no warning condition were identical, except that the first sentence (highlighted in bold) was deleted from the instructions.

The participants in both the warning and no warning condition were then asked about the source of twenty-four items. For each item they were asked two yes/no questions: 1) whether they had seen the item in the video, and 2) whether the item had come up when they made the recording with the other experimenter. The participants also rated their confidence in their answers using a scale, where they had to choose among one of five confidence levels (not at all confident, somewhat confident, fairly confident, considerably confident, and extremely confident). Additionally, if the participants remembered the question coming up during the recording, they were asked if it was an answer that they provided or an answer that they had

read. The source test included a variety of questions derived from the post-event questioning phase including: 1) the two confabulated and two read items that they provided in response to the false event questions, 2) the four items that the participant's yoked partner generated and read in response to the false event questions, and 3) sixteen filler questions that included the participant's response to the true event questions. The participants were yoked to measure the base rate tendency for participants to claim that they remember seeing the false event items even if they had not been exposed to the corresponding false event question previously. Thus, the four items that were answered by a participant's yoked pair served as control items.

After the questioning, each participant was instructed not to talk about the experiment with anyone, otherwise his or her data would be invalidated. Participants were thanked for their participation and were let go. The subjects received a debriefing sheet through their campus mailbox either at the end of the semester or when the experiment had been completed.

Results

To examine participants' overall memory for confabulated and implanted items, I examined the number of times participants recognized items from the experiment. In other words, I tallied the number of times the participants said "yes" to either or both of the source test questions. A 2 (item: confabulated, implanted) x 2 (warning, no warning) repeated measures Analysis of Variance (ANOVA) was run to determine whether or not participants recognized false event items as old (e.g. if they said that they saw a false event item in the video or if they remembered talking about the false event item in the interview). A proportion of false event items remembered was analyzed, and overall, participants recognized the confabulated items ($M = 0.87$, $SD = 0.23$) more often than the implanted items ($M = 0.72$, $SD = 0.36$). This difference was significant ($F(1, 134) = 17.201$, $p < .05$). This main effect replicates the typical generation

effect. There was no main effect of warning ($F(1,134) = 0.021$, $p > .05$) and no interaction between item type and warning ($F(1,134) = 0.020$, $p > .05$). In general, confabulated items were recognized more often than implanted items and a warning had no significant impact on a participant's ability to remember items from the experiment.

Next, it was necessary to establish that both suggestive interview techniques lead to false memories. To do this, I tallied the number of times participants said "yes" when asked if they had seen false event items (confabulated and implanted) in the video. These data were then analyzed using a 3 (item type: confabulated, implanted, control) x 2 (warning, no warning) repeated measures ANOVA. The mean proportion of false memories for the confabulated items was 0.33 ($SD = 0.39$), implanted items was 0.36 ($SD = 0.37$), and control items was 0.07 ($SD = 0.13$). There was a significant main effect for item type ($F(2,268) = 39.184$, $p < .05$). As apparent in Figure 1, participants were more likely to develop a false memory for items if the items were self-confabulated or implanted than the items served as controls. In other words, participants were more likely than chance to develop false memories for both confabulated and implanted items. To determine whether forcing a witness to verbally confabulate details about a witnessed event was more or less dangerous than implanting the same details, a 2 (item: confabulated, implanted) x 2 (warning, no warning) repeated measures ANOVA was run. The incidence of false memory for confabulated and implanted items was not significantly different ($F(1,134) = 0.311$, $p > .05$) indicating that, at least in the present study, the confabulated and implanted interview techniques were equally dangerous in producing false memories.

Next, I looked at whether a warning reduced the number of false memories reported by witnesses. The mean proportion of false memories for the no warning condition was 0.42 ($SD = 0.39$), while the mean proportion of false memories for the warning condition was 0.29 ($SD =$

0.36). The 2 (item: confabulated, implanted) x 2 (warning, no warning) repeated measures ANOVA showed that there was a significant main effect for warning ($F(1,134) = 7.321$, $p < .05$), such that warning participants that they may have been exposed to questions about non-existing details reduced the number of false memories reported relative to a no warning group (see Figure 1). It is important to note that a warning was effective in reducing the number of reported false memories, but it did not eliminate false memories overall. Interestingly, a warning provided protection against the development of false memories to the same extent for confabulated and implanted items as indicated by the fact that there was no statistically significant interaction between item type and warning ($F(1,134) = 0.118$, $p > .05$).

Finally, I examined the extent to which participants accurately remembered confabulated and implanted items coming up in the interview by tallying the number of times they responded "yes" to the corresponding question. These data were submitted to a 3 (item: confabulated, implanted, control) x 2 (warning, no warning) repeated measures ANOVA, which revealed a significant main effect of item type, ($F(2,268) = 318.931$, $p < .05$). As seen in Figure 3, participants accurately remembered the false event items (confabulated and implanted) from the interview more often than controls. There was no interaction between item type and warning, ($F(2,268) = 0.476$, $p > .05$). A 2 (item: confabulated, implanted) x 2 (warning, no warning) ANOVA with the same data showed that participants remembered the confabulated items from the interview more often than the implanted items, ($F(1,134) = 42.466$, $p < .05$). There was no main effect for warning ($F(1,134) = 0.573$, $p > .05$), which suggested that warning participants did not help cue participants that the false event information originated from the interview. Moreover, there was no significant interaction between item type and warning, ($F(1,134) = 0.055$, $p > .05$), showing that the warning manipulation affected both types of suggested

information comparably. Thus, participants remembered that the confabulated items originated from the interview more often than for the implanted items. This illustrated that participants had a better memory for source when they confabulated items themselves. Intriguingly, however, memory for source did not protect participants from making false memories overall.

Discussion

The purpose of the present research was to compare the consequences of two suggestive interview techniques: implanting misinformation and forcing witnesses to confabulate misinformation. As expected, participants demonstrated a typical generation effect (Slamecka & Graf, 1978) such that they were more likely to remember self-generated items occurring in the experiment than implanted items. Furthermore, participants were more likely to remember that the false event items came up during the interview if they had self-confabulated responses than if they were simply provided with responses. Johnson, Hashtroudi, and Lindsay's (1993) source monitoring framework suggests that a memory for an item includes perceptual, contextual, and affective information, semantic detail, and cognitive operations all of which are the product of perceptual and reflective processes engaged in at the time of initial event encoding. At the time of memory retrieval people can utilize these characteristics to determine the origin or source of their memories. It was expected that the amount of effort required to confabulate a response might have provided more detailed characteristics and additional cues, which would allow a participant to correctly remember the origin of their memory for an item. The results indicated that this was the case, as participants were more accurate in identifying the source of generated answers than for items that they simply read, indicating a generation effect for source. This replicates the generation effect for source demonstrated by Geghman and Multhaup (2004). Yet, despite this accurate memory for source, participants still developed false memories for their

confabulated details. In fact, the incidence of false memory was comparable for confabulated and implanted items. Thus, in the present study, both suggestive interview techniques were equally dangerous in eliciting false memory.

Since these results were somewhat surprising, I looked closely at the type of false memory errors that participants made by examining the distribution of their responses to the two test questions (i.e. video? interview?). Essentially, there are two different types of false memories that could have developed: 1) participants could remember an item from the video, but not from the interview, or 2) participants could remember an item from the video and from the interview. The first type of error indicates a more "pure" false memory, in that participants misattribute the source of the information solely to the video. As illustrated in Table 1, in the present study, it was found that implanted items were subjected to more pure memory errors. In other words, if participants were provided with false information, they were more likely confuse the source of the information and report that it only occurred during the video. On the other hand, participants showed a tendency to claim confabulated items had occurred both in the video and the interview (see Table 1). Whereas this is an interesting pattern in and of itself, it may suggest the possibility of eliminating or reducing false memories for confabulated items by specifically instructing participants to avoid reporting details they believe originated in the interview, a technique that has been used in previous research (Eakin et. al., 2003; Holliday & Hayes, 2000).

The present study also explored the effectiveness of a general warning at the time of retrieval. Prior to source test, some participants were warned that they had previously been exposed to false information. This study illustrated that a warning was effective, as participants were less likely to develop a false memory for an item if they received a warning relative to if

they had not been warned. Moreover, the protection that a warning provides was comparable across both interview types. In other words, confabulated and implanted items were affected by the warning manipulation to the same extent. Despite the effectiveness that a warning had on reducing the incidence of false memories reported, a warning did not protect participants from developing false memories overall. The type of warning used in the present study was relatively subtle, in that participants simply heard that they might have been exposed to false information. That such a subtle, nonspecific warning was effective makes it seem especially likely that a more explicit warning, such as the warnings used in other studies (Eakin et. al., 2003; Holliday & Hayes, 2000), would in the least reduce false memories for confabulated items, if not for implanted items as well. This is based on the assumption that a specific warning at the time of retrieval might provide participants with a cue to utilize the extra processing information stored along with the memory of an item. The participant might call upon such a cue, which would allow them to make more accurate judgments about the true source of a remembered item. Further studies should investigate the extent to which a more explicit warning may impact the development of false memory in this research paradigm.

In summary, participants developed false memories for both implanted and confabulated information. Furthermore, the incidence of false memory development was comparable across both suggestive interview techniques. Participants were able to provide more accurate responses to the source of their memory for an item if they confabulated it themselves, but, in the end, this did not protect them against developing a false memory. Secondly, a warning at the time of memory retrieval protected participants from developing false memories, and was just as effective for implanted and confabulated items. Although a warning provided some protection against the development of false memories, it did not eliminate reports of false information.

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Table 1

Distribution of Responses

Warning Condition

	Saw/Talk Y/N	Saw/Talk Y/Y	Saw/Talk N/Y	Saw/Talk N/N
Confabulated	0.04	0.24	0.63	0.09
Implanted	0.12	0.19	0.41	0.29

No Warning Condition

	Saw/Talk Y/N	Saw/Talk Y/Y	Saw/Talk N/Y	Saw/Talk N/N
Confabulated	0.05	0.37	0.45	0.13
Implanted	0.15	0.28	0.29	0.28

Figure Captions

Figure 1. The mean proportion of false memories as a function of item type (confabulated, implanted, control) and warning condition.

Figure 2. The mean proportion of items recognized as old as a function of item type (confabulated, implanted) and warning condition.

Figure 3. The mean proportion of items remembered from the interview as a function of item type (confabulated, implanted, control) and warning condition.

Figure 1

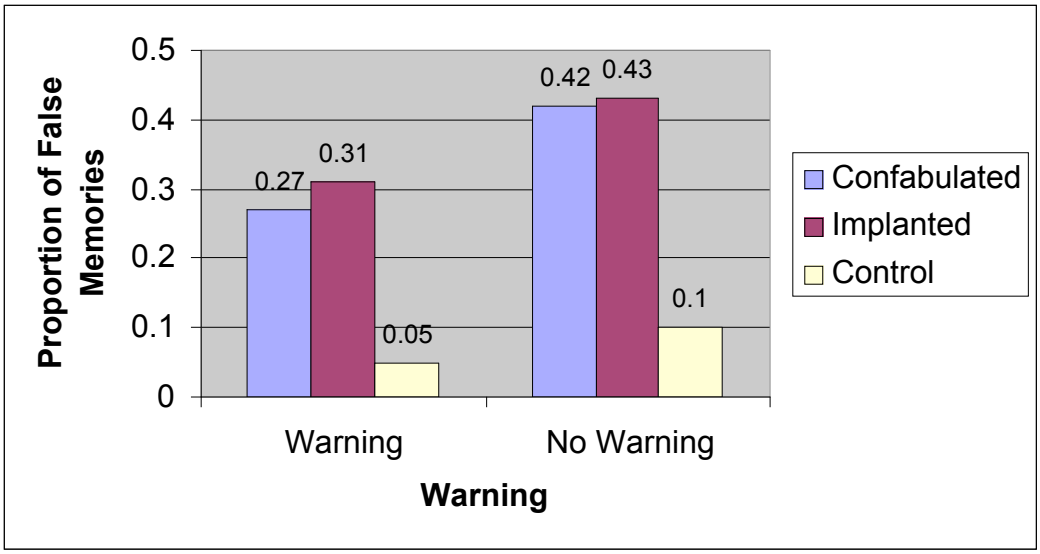

Proportion of False Memories
0.5
0.4
0.3
0.2
0.1
0
0.27
0.31
0.05
0.42
0.43
0.1
Warning
No Warning
Warning
Confabulated
Implanted
Control

Figure 2

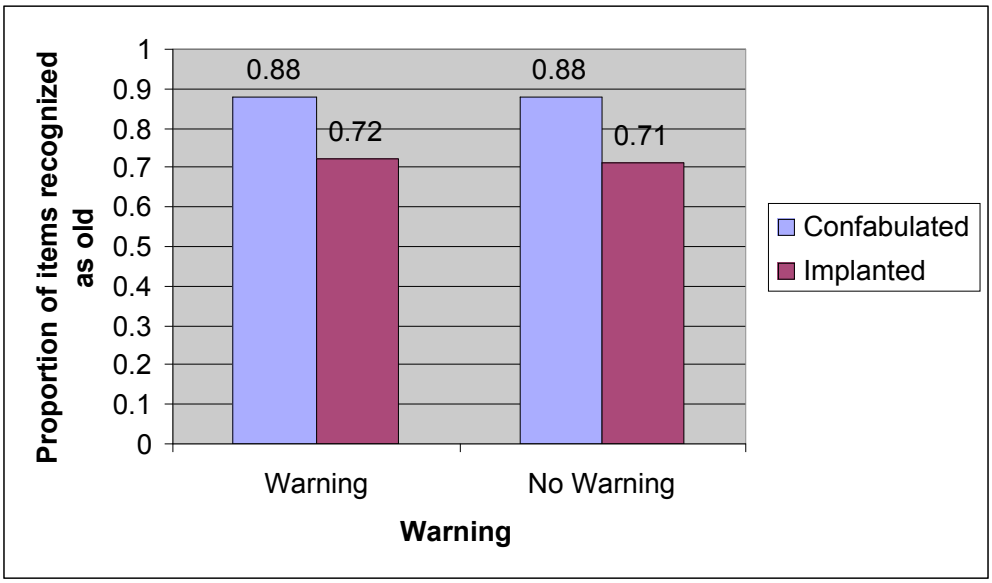
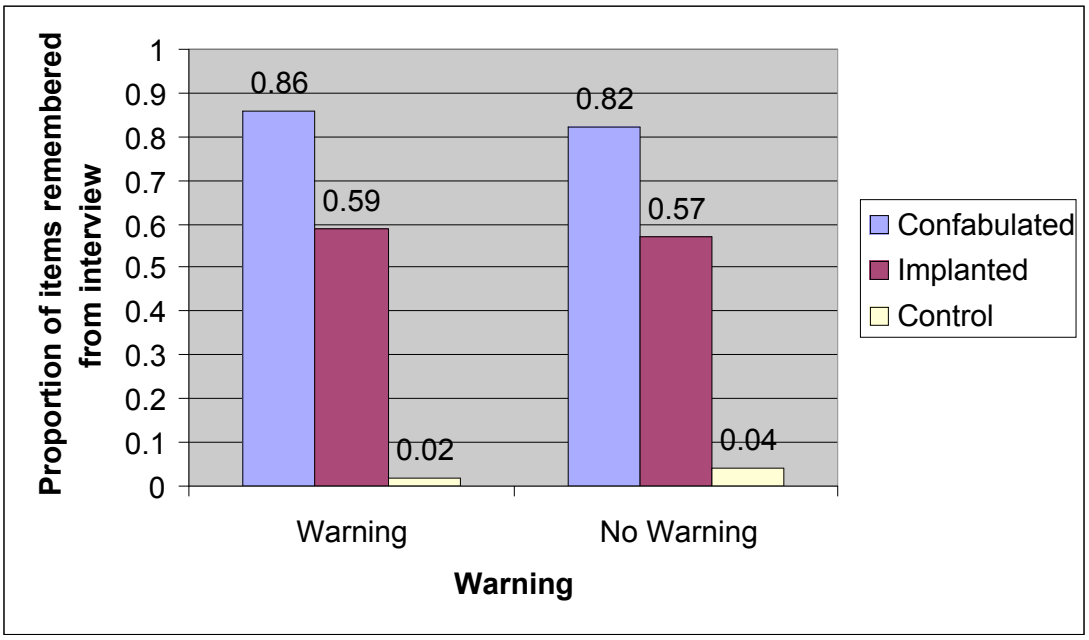

Proportion of items recognized as old
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.88
0.72
0.88
0.71
Warning
No Warning
Warning
Confabulated
Implanted

Figure 3


Proportion of items remembered from interview
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.86
0.59
0.02
0.82
0.57
0.04
Warning
No Warning
Warning
Confabulated
Implanted
Control