

CHANGE IN SUSPECT'S MEMORY AS A RESULT OF DECEPTION

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One hundred and eight participants either stole or replaced a stolen exam key from a professor's office. Half of the participants were instructed to respond honestly and to help with an investigation; the other half were instructed to distort their statement so they were not implicated. Participants did not know whether they would be asked to lie or report honestly during their time in the professor's office. After completing the task, participants again met with a research assistant, who instructed them whether to lie or respond honestly at a one-week follow-up. After the interview, participants completed a Likert-type post-event questionnaire. Deceivers reported significantly more anxiety and motivation not to get caught while in the office, even though there were no differences in the instructions given to the two groups until after participants left the office. Therefore, the act of deception changed their memory for their time in the office. This is important theoretically because it suggests that forming a lie script could be akin to other memories for counterfactual thinking. Practically, it is important to note that a deceptive perpetrator or detainee may never be able to actually provide an accurate account.

Though a great deal of research attention has been given to post-event memory distortion, only a few researchers have focused on memory change as a result of deception. Pickel (1) reported two such studies. In the first, participants watched a video of a robbery, were immediately interviewed in one of four conditions designed to affect memory, and then asked to return one week later to complete a questionnaire that assessed memory accuracy. At the interview, participants were instructed to either: fabricate information about the clerk, fabricate information about the robber, respond honestly, or complete a distracter task without recall of the video (this group is referred to as the no rehearsal group). After these interviews were completed, participants were instructed to return in one week for the memory questionnaire. Participants were specifically instructed not to provide information from the

interview in response to the questionnaire. However, the act of fabrication during the interview seemed to affect the quality of information that the participants provided to the questionnaire. The group that fabricated information about the clerk and the distracter group provided the largest number of inaccurate details regarding the clerk. Similarly, the group that fabricated information about the robber and the distracter group provided the largest number of inaccurate details regarding the robber. From this, it appears that the act of fabrication counteracted the benefit of rehearsal, so that the fabrication group performed the same as the no rehearsal group. Interestingly, this reduction in accuracy was specific to the object of the fabrication. Those who fabricated about the clerk showed reduced accuracy about the clerk; those who fabricated about the robber showed reduced accuracy about the robber.

In the second study (1), participants viewed the same video of a robbery, were interviewed in one of three conditions designed to affect memory, and were again asked to return one week later to complete a questionnaire that assessed memory accuracy. The three conditions were created by instructions to: fabricate regarding the robber, respond honestly, or to memorize a set of fabrications that were provided by the experimenter. Once again, participants were specifically instructed not to let the information that they provided to the interview affect their responses to the questionnaire. However, the act of fabrication still affected the information provided to the questionnaire. For those who fabricated details regarding the robber, 37% of the information presented to the questionnaire was mistakenly derived from the interview. Similarly, for those who memorized the set of fabrications, 56% of the information presented to the questionnaire was mistakenly derived from the interview. There was no similar carryover effect for honest reporters.

The results from Pickel's experiments demonstrated that although the subjects were asked to use information that they remembered directly from the video to answer the questionnaire, they were not always able to do this. The act of preparing responses based upon fabricated information fundamentally altered the participant's memory for the original event.

Along this line, the current study examined whether deception can alter a suspect's original memory for an event. Previous research dealt only with those who witnessed a video. The current study examined similar effects, but focused on a person who actually committed what they perceived to be a

small crime. This is potentially significant, in that it has always been assumed that those who choose to lie have the ability to still remember the truth. So, the task of the interviewer or interrogator is to cause a deceptive suspect to abandon their deception and provide their genuine memory for the alleged crime (and maybe a confession). However, if deception permanently alters the suspect's memory for the original event, it may not be possible for them to recall what actually happened. If this is true, then even a willing suspect who was formally deceptive may no longer be able to provide accurate information regarding the event in question. Therefore, this distortion of memory as a result of deception has a number of significant ramifications for investigators.

METHOD

Participants

One hundred and thirteen participants completed the task of this study in the psychology department of a university in the Northeastern United States. Five of these participants were dropped due to not following experimental instructions to respond honestly or deceptively (i.e., participants in the honest group did not respond honestly, or vice versa), or due to incomprehensible portions of their later recorded interviews. Of the remaining one hundred and eight participants, 64% were female and 36% were male. Sixty-six percent described themselves as Caucasian, 23% as African American, and 11% as Asian-American.

Procedure

Participants either stole or replaced a stolen exam key from a psychology professor's office. This difference in taking versus leaving the exam key was not an experimental factor, but was added to allow for research assistants to verify that each participant followed directions. If the test was not in the office or brought back to the experimenter as scheduled, then it would be obvious that a participant had not behaved as directed. During the commission of this small crime, students were under the impression that the professor who used the office and campus police did not know of the experiment. They thought they were committing a genuine offense, but that the experimenter would intervene on their behalf. They did not think they would ultimately be held responsible, but that, if caught, there would be a great deal of difficulty

in reconciling the situation. One-half of the participants were instructed to respond honestly and to help with an investigation, while the other half were instructed to distort their statement so that they were not implicated in any wrongdoing. Participants did not know whether they would be asked to lie or report honestly during their time in the professor's office. After completing the assigned task, participants again met with a research assistant, who instructed them whether to lie or respond honestly, and also made an appointment for an investigative interview one week later. Each group was promised that if they convinced the interviewer at the upcoming investigation, they would get \$2, and that the two "best statements" would each win \$100. At the following interview, participants completed a Likert-type questionnaire regarding their experiences in the study (Appendix 1). The questions of interest for the current study assessed level of anxiety while in the room, and level of motivation to succeed at their assigned task while in the room. Participants were then fully debriefed and told that they had not committed any real violation, and were warned about the dire consequences of genuine academic dishonesty. The level of verisimilitude in this experiment was viewed as acceptable by the Internal Review Board for the Protection of Human Research Participants because the purpose of the experiment was to obtain information that could be generalized to police investigations. Also, a pilot was run, and participants rated their anxiety during the task as lower than what they felt while taking an exam or giving an in-class presentation.¹

RESULTS

As mentioned above, the data were first screened to make certain that all participants followed their assigned condition. Five cases were dropped, leaving a sample of 108. Because the data gathered were Likert-type, there was no reason to assess for outliers or colinearity. This left 54 honest and 54 deceptive participants.

Participants did not know whether they were to respond honestly or deceptively while they were in the professor's office, stealing or replacing the exam key. They were assigned to these conditions after completing that portion of the experiment. After they were assigned to report honestly or decep-

¹ If students were not less anxious about cheating than taking exams, then academic dishonesty would never occur.

tively, they were given approximately one week to prepare for an investigative interview. Following the interview, participants completed the Likert-type questions listed in Appendix 1. They were asked to rate the amount of motivation they felt to complete the task, and to rate how anxious they were while completing the task. Participants assigned to the honest group reported a mean motivational level of 3.2 ($sd = 1.2$), while participants assigned to the deceptive group reported a mean motivational level of 5.3 ($sd = .9$). Similarly, participants assigned to the honest group reported a mean anxiety level of 3.8 ($sd = 1.4$), while participants assigned to the deceptive group reported a mean anxiety level of 5.0 ($sd = .7$). The effect size for the observed mean difference between honest and deceptive participants for their remembered level of motivation = $d = 1.8$. For the observed difference between honest and deceptive participants in their remembered level of anxiety, $d = 1.1$.

A factorial ANOVA was used to determine whether instructions to respond honestly or deceptively after the event had significantly affected participants' memories for the event as measured by the Likert-type scales. This indicated a significant relationship between honesty versus deception condition and participants' memories for the event, $F(1, 106) = 3.7, p < .05$. At the time of the follow-up interview, deceptive participants reported being more anxious while in the professor's office, $t(100) = -2.6, p < .05$, and deceptive participants reported being more motivated while in the professor's office, $t(100) = -2.7, p < .05^2$. This indicated that instructions to respond honestly or deceptively, which were provided after the participants left the professor's office, distorted their memory for the time they spent in their office.

DISCUSSION

The participants in this experiment did not know whether they would be responding honestly or deceptively while they were in the professor's office (either stealing or replacing a stolen exam key). They were assigned to report honestly or deceptively after they had completed the assigned task regarding the exam key. Interestingly, those who were instructed to deceive after leaving the office reported experiencing significantly more anxiety while they were in the professor's office. Similarly, these deceivers also reported experiencing a significantly higher level of motivation to escape detection while in the professor's office. This becomes important when one considers that

participants did not know whether they were going to deceive or respond honestly when they were in the office. The experiences of deceivers and honest reporters were identical while in the professor's office. Therefore, these reported differences in experience among deceivers represent a change in memory of the event as a result of their later attempt at deception. This finding is consistent with research that demonstrates the act of confabulation or deception can cause a change in original memory for the original event among witnesses (1, 2). The current study extends this change of memory due to deception to suspects.

Many researchers have focused on the different requirements of honest responding versus deception during an investigative interview. Porter and Yuille (3) described this process as superficial encoding, while Granhag et al. (4) discussed the repeat versus reconstruct hypothesis, and Colwell et al. (5, 6) described the use of lie scripts. All of these researchers are emphasizing the fact that honest respondents are free to think about what actually happened during an interview. Conversely, deceivers attempt to block their memory for the original event, and instead provide information from another source (one they have previously spoken or previously rehearsed). The present study indicates that the process of inhibiting the original memory while responding with a different or modified version may have detrimental effects on the respondent's ability to later retrieve the actual memory. This may be an error of retrieval, an error of source monitoring, or some other type of contamination. Lying may be a form of post-event misinformation (7), or lying about a complex event may be similar to the process of "imagination inflation."

Imagination inflation has been described by a number of researchers. Garry and colleagues (8) demonstrated that participants who have imagined that they have experienced a past event later report that event as more likely to have occurred. Imagining a past event has also been shown to create false memories. Mazzoni and Memon (9) asked participants to imagine a medical procedure that, while plausible, had not been performed in their geographical area. These participants later reported memories of the event, and did so at a rate higher than those who were just exposed to information about the procedure. One possible explanation for the imagination inflation effect is a source monitoring error (10)—in the present research, participants may in-

correctly attribute the anxiety associated with the imagined behavior with the actual behavior. It may also be that participants report they felt anxious in the office because the feelings of anxiety they felt in creating and imagining their deception story are more accessible and familiar at the time of the test (11). Of course, these explanations are not mutually exclusive, and further research would be needed, but it is clear that the instruction to create a deception story altered the participants' memories for the actual event.

This is potentially significant, in that it has always been assumed that suspects who choose to lie still have the ability to remember the truth. The traditional task of the interviewer or interrogator is to cause a deceptive suspect to abandon their deception and provide their genuine memory for the event in question (and maybe a confession). In this way, investigators hope to make accurate decisions and solve the maximum number of cases. The current laboratory finding suggests that the act of deception permanently alters memory for the original event. If this is true in the real world, then a deceptive suspect may no longer be able to provide accurate information regarding the event in question. A lie can "become the truth" (1), or otherwise contaminate the suspect's memory.

This study indicated that lying changes the memory of suspects. The participants of the study knew that they were not in a true investigation, but they did have a chance for significant financial gain determined by their performance. If the same change in memory happens during an investigation, then the investigators would have no way of obtaining complete and accurate information about the original event. This effect highlights the difficulty of making decisions based upon the information provided from any single suspect or witness. Thus, the change of memory as a result of deception seen in this study indicates a need for future research in the area, 1) to determine the extent that the observed effects can be generalized to investigative settings, and 2) if any interviewing or credibility assessment techniques can be used to assist investigators in instances with limited sources of information (e.g., 6). If the changes in memory due to deception are relatively minor, then the real-world applications will not likely be affected. However, if these changes are potentially large, then investigators need some tool to help them separate genuine recall from distortion.

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APPENDIX 1

Participant #: _____

Please rate the importance of these things in making your story sound convincing by circling the most appropriate number under each of the following:

1. How motivated were you to not get caught during the time in the professor's office?

<i>Not motivated</i>			<i>Motivated</i>			<i>Very Motivated</i>
1	2	3	4	5	6	7

2. How anxious or upset were you during the time you spent in the professor's office?

<i>Relaxed</i>		<i>Somewhat anxious / upset</i>		<i>Very anxious / upset</i>		
1	2	3	4	5	6	7

3. When telling your story, were you more or less anxious than when taking a final exam? _____

4. When telling your story, were you more or less anxious than when giving an in-class presentation? _____

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