Authoritative Eyewitness Testimony and False Memories

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Abstract

How important are eyewitness testimonies? We investigated the potential effect of authoritative eyewitness testimony, and the veracity of the testimony on juror decision-making. When our memory has discrepancies, we utilize a source-monitoring framework which suggests we confuse the source of our information between multiple sources. Here, 55 college-age participants saw a video of a car crash and read a testimony, relayed by an eyewitness differing in authority (police officer or bystander) and in testimony content (true or false relative to the facts in the video). Participants completed a 10-question-posttest, where they recalled details of

the event. No significant effects were found for any manipulated condition on the posttest. There was a significant interaction between authoritative condition and perceived confidence in participant accuracy of their recall. These findings suggest that jurors do not factor in testimony when recalling detailed events, but do deliberate more when an authority figure is presented.

Authoritative Eyewitness Testimony and False Memories

The influence of eyewitness testimony in court is a frequent method used to demonstrate increased competence and knowledge in a given subject, or to add in details about a court case to present to a judge and jury. However, the memory of one individual is subject to discrepancies between their memory and the actual event. To understand memory and the effect of the circumstances surrounding memory recall, we must first look at how people reconstruct memory and recall events they have seen before.

When people reconstruct an event, they utilize processes which some attribute to source-monitoring (Lindsay & Johnson, 1989). Source monitoring is when people attribute information to different sources and integrate these sources into their memory when there is a discrepancy between their memory and the actual event. Previous literature identifies that the nature of the question matters; when subjects are presented with accounts of memory, both during the event and then a recollected event (eyewitness testimony), the participants given a forced choice method tend to recognize familiar options, instead of drawing upon the logic of where they recalled the actual source of that memory (Lindsay & Johnson, 1989). Research suggests that asking questions based on a source-monitoring framework may lead to fewer misattributions and mistakes in judgment of the sources.

Additionally, previous literature investigated the influence of the kind of wording used in questions on participant memory, and found that the severity of the word used in questioning (e.g. hit as opposed to smashed) influenced the likelihood of participants' judgments of increased speed of a car in a video, and their recall of a hypothetical event (Loftus & Palmer, 1974). Memory is clearly malleable, and false memories are easily implanted, as demonstrated by Zhu et al. (2012) whose paper investigated the longevity of false information on initial narratives. They found that their participants do indeed intake information that is false, and that they kept false memories in their repertoire for a longer period of time than just the initial session, in

accordance with source monitoring theory as participants misattributed the source of the false memories from the first session in a follow up survey 1.5 years later (Zhu et al., 2012). The malleability of memory is pertinent in court cases, when eyewitness identification is common.

Studies regarding psychological expert testimony's influence on the jury demonstrate that there were fewer convictions when eyewitness testimony occurred, and this was attributed to the attention and time given to those who testified (Loftus, 1980). Ultimately there is limited information on the effect of the testimony's details on reconstruction of a participant's memory. Understanding whether the effect of the person's perceived authoritative status is accounted for when giving eyewitness testimony, disregarding psychological expert testimony, would help inform juror decision-making.

In this study we hypothesize that participants given testimonies with false memories inserted in will have more false memory intrusions in recall than the group with the completely accurate testimony due to source monitoring due to confusion of where the original source of their memory came from, the testimony or the video. We hypothesize that participants should take the kind of social figure giving the eyewitness testimony into their source monitoring framework when completing the recall posttest measure. We additionally predict an interaction effect from people reading accurate testimonies from a police officer, expecting that this condition will lead to better recall performance than the bystander condition. We expect participants in the police condition to pay more attention to the content of the testimony given, since police are a more salient authority figure and expert testimony than the control condition, which is a bystander.

Method

Participants

The participants (N = 55) are comprised of University of California, Santa Barbara college students, as well as college students recruited from other universities. The age range was 18-25, and the average age in years was 21 (*SD* = 1.06). They were recruited from the lab class for course credit and completed the survey on an entirely voluntary basis. There were 32 female, 21 male, and 2 nonbinary participants. There were 27 people in the bystander condition, and 28 people in the police condition; there were 27 people in the true testimony condition and 28 people in the false testimony condition. Participants were randomly assigned an authority condition, either a police condition or bystander condition, receiving one of two survey links, operationalized through the Qualtrics survey platform, to every other participant. Qualtrics randomized the testimony condition in each authority condition (true or false).

Apparatus

We tested participants through a survey platform called Qualtrics. Participants opened the link sent out by a teacher and took the survey on a technological device.

Design

This is a 2x2 between-subjects experimental design with 2 independent variables each containing 2 levels: the authority condition, which is the person presenting their eyewitness testimony, a police officer or a bystander, and the testimony statement condition, which is when the eyewitness presents either a false testimony or true testimony relative to the video participants watch. The dependent variable is the posttest recall measure, a measure of 10 questions asking about viewable elements in the video.

Materials

The stimuli comprises four possible written testimonies, each a couple sentences long, that participants could see following the video (see Appendix B4). The participants see two Youtube videos; the first video is a minor car crash, titled “Minor Car Accident Caught on DashCam" from creator Car Crash TV (see Appendix A1), and the second video, used as a distractor between recall and the initial viewing of the first event, is a clip from the television show Friends, titled “Friends: Lobster (Clip) | TBS" from the television network TBS (see Appendix A2). They also see a list of 10 questions about the minor car crash video (see Appendix B1). Participants also see a confidence check question about the perceived accuracy of their responses (see Appendix B5).

Procedure

Participants open the Qualtrics survey link they were sent through a personal technological device. The links were randomized by selecting every other person one of two links, which was the bystander condition of authority, or the police condition, and participants took the survey in a quiet area. They view a consent form (see Appendix B2), and either agree or disagree to proceed. If they agree, they enter demographic information such as their age, identifying number (school ID), and gender identity and preferred pronouns. They then view video directions which precede the car accident video: “Click the video to play it. Note that it cannot be made full screen, so please do not attempt to do so. Please pay attention as you will only be able to view it once. Proceed to the next page when you are ready.” Once they proceed to the next page, they are then prompted to watch the 30-second Car Crash YouTube clip in the survey platform (see Appendix A1). Then participants see either a true or false testimony, which is randomized by Qualtrics, but the randomization of who is giving the testimony, either the police officer or bystander, was operationalized by sending out alternating surveys. The true and false testimony is randomized evenly by Qualtrics. Then they then proceed to view a distractor video from the TV show "Friends" for 45 seconds (see Appendix A2). Then they answer 10 free response questions regarding details about the events in the first video (see Appendix B1). After, they see a confidence check on a 4 point scale “How confident are you in the accuracy of your responses?” From “Not at all confident” to “Very confident”. Then they are asked “Are the police a symbol of authority?” as a Yes/No question (see Appendix B5). Lastly, they see a debrief form (see Appendix B3) and were thanked for their time.

Coding and Analysis

Memory scores on the posttest measure out of 10 were scored on exact correct answers, e.g. "Do cars have their headlights on or off??" with the correct answer being "on", and all other answers being incorrect. There was leniency for a few questions, such as car color. If they indicated two answers, with one answer being right, graders marked it as correct. The only exception to this correct-incorrect grading scale was "Approximately how many buses were in the video?", with the correct answer being 5, 4, or 3 buses, and those having indicated 1 or 2 buses being marked incorrect. This was done due to observations that most people indicated 2 or 3 buses, and that there was only one participant who indicated seeing 5, which was the correct answer. False memory score was coded based on whether the participants got an incorrect answer within the column of the variables manipulated in the testimony, e.g. the colors of the cars in the video, with the same correct-incorrect grading score. We ran a 2 x 2 between-subjects univariate ANOVA testing the main effects of authority condition and testimony condition on posttest performance.

Results

We predicted that participants in the true testimony police condition would perform best on the posttest recall, and participants in the false testimony police condition should perform least well. True testimony bystander conditions should perform better than the false testimony bystander condition, and the false testimony bystander condition should perform slightly worse, but not as bad as false testimony police condition. The mean and standard error of participant score on the posttest by condition can be seen in Figure 1, and the means and standard deviations are in Table 1. The descriptive statistics and analyses from these results did not support our hypotheses.

We ran analyses congruent to our proposed design, such as univariate ANOVA for the 2 x 2 between-subjects design for the effect of authority, bystander and police, and testimony condition, true and false, on the participant's performance on a recall test measuring memory retention.

Table 1

Means and Standard Deviation of Conditions

	True Testimony Condition	False Testimony Condition
Authority: Bystander	$M = 5.85$, $SD = 2.03$	$M = 5.50$, $SD = 1.65$
Authority: Police	$M = 5.00$, $SD = 1.80$	$M = 5.64$, $SD = 1.22$

Note: The score on the recall posttest is the dependent variable, as the number of questions participants got right out of 10. The conditions are the authority and testimony conditions. The *M*

and *SD* represent mean and standard deviation, respectively.

We found no significant effects for this ANOVA for the interaction for authority condition and testimony condition, on the posttest scores $F(1, 51) = 1.17$, $p = 0.28$. There was no main effect of authority, $F(1, 51) = 0.571$, $p = 0.45$, nor testimony condition $F(1,51) = 0.119$, $p = 0.73$, which again did not support our proposed hypotheses.

After running these initial analyses, we ran exploratory analyses and found a 4 (confidence level) by 2 (condition: authority, testimony) between-subjects ANOVA and found a significant main effect of authority condition, $F(1,51) = 4.75$, $p = 0.034$. The testimony condition $F(1,51) = 0.081$, $p = 0.78$, and interaction between authority and testimony condition regarding confidence was not significant $F(1,51) = 0.363$, $p = 0.55$. Post-hoc (LSM) tests for the main effect of authority indicated that people in the authority-bystander condition were different in the confidence of the accuracy of their responses on the posttest than participants in the police condition, regardless of the true or false content of the testimony condition ($p < .05$). Participants in the bystander condition reported more confidence in the accuracy of their responses, $F(1,51) = 4.75$, $p = 0.035$, $\eta p^2 = 0.085$. This was a medium effect.

Upon running correlation analyses, we found a significant correlation, $r(53) = 0.31$, $p = 0.020$, between perceived confidence level for accuracy of answering the questions post-test, and actual accuracy in the post test (Figure 2). Additionally, there was a marginally significant negative correlation $r(53) = -0.26$, $p = 0.058$, between perceived confidence level and the amount of false memories, as expected.

Figure 1

Means and Standard Error of Experimental Condition

Note: This graph represents the mean and standard error of all experimental conditions. Bystander and police represent participants in the authority condition respectively, while those in the control and false testimony represent participants in the testimony condition.

Figure 2

Judged Confidence Rating and Performance on Recall Post-test

Note: The points on the plot represent all 55 participants, some of which may have answered the same confidence rating and received the same score. The confidence rating for accuracy of the participant responses is 1 = Not at all confident and 4 = Very confident. A line of best fit is drawn

to indicate the general trend. The density level is indicated on the right, with the yellow color being the most dense areas, and purple being the least dense.

Discussion

Taken together, our results cannot support our hypothesis that false memories were implanted at all due to differing true or false testimonies, and this was not based on differing eyewitness accounts, operationalized by the correct answers a participant answers on a posttest. This did not support our predicted main effect of receiving the false testimony condition, as there was not a significant effect, nor was any other main effect significant. We also did not find an interaction effect between the police and true testimony condition on the posttest performance, so this did not support our hypotheses either. We saw no significant effects between the posttest measure of true and false testimony condition, and because participants were not considering another source of information when they recalled the event, they may not have engaged in source monitoring at all. Likely this was due to the lack of attention participants paid to the testimonies' content, and that the events of the video were the most salient takeaway from the survey. Therefore, the testimonies' content nor the any effective impact of the authority figure was not registered and participants did not incorporate the testimony to answer questions, using their own working memory capacity instead.

The manipulated effect of the identity of the authority condition did not exist, indicating that at least in a written eyewitness testimony, the identity of the reporting eyewitness has no effect on the accuracy of potential juror/participant responses. Importantly, at least in this study, this implied that authoritative status will not impact the accuracy of jurors in recalling eyewitness events.

However, due to exploratory analyses, we found an effect of authority condition on the level of judged confidence in the accuracy of participant responses, with the participants in the bystander condition believing they were more confident in their answers than those in the police condition. There was also a correlation between judged confidence level and actual accuracy of participants on the posttest, indicating that to a degree, participants were accurately assessing their knowledge of memory to a performance measure.

Furthermore, why might people indicate more confidence in the bystander condition of authority? In a paper by Loftus (1980), the effect of an authoritative or eyewitness testimony led jurors to extend their deliberation time when judging a court case. Potentially the mention of an authoritative figure made participants more cautious about their answers, paying more attention to where the source came from. The fact that people were more confident in the bystander condition is in line with this finding. Although the effect of an authoritative figure may not have impacted the actual accuracy of participant recall, the fact that it impacted perceived confidence implies people are at least recognizing to a degree that an authority figure is connected to fair judgment. The presence, or reminder of authority may make people more consciously aware of the consequences of their judgment when they are prompted about how accurate they may be, or prompted for questioning (Devenport & Fisher, 1996). Understanding the difference in the way

jurors' are treating eyewitnesses of authoritative and non-authoritative status can inform the weight jurors' should place on eyewitness testimonies. Armed with the knowledge that more authoritative eyewitness accounts lead to longer deliberation, jurors can enact a conscious effort to treat testimonies equally, giving all cases the same amount of scrutiny.

There were several limitations in this study. The effect of false memory implantation is generally difficult to replicate, and we saw no significant effect for a difference between participants between the false and true testimony conditions on their performance on the posttest based on our manipulated variables. Primarily it may be due to the fact that the survey allowed them to continue on immediately after the video, being able to bypass the testimony with a click of a button. This feature may have reduced both the effect of the authority figure and testimony, since both conditions were on one page of the survey and were the main manipulation of our experiment. Police are also not necessarily an authority figure to all participants due to the varied history of the police force, and so this effect may not have been as salient as another high status authority figure. Lastly, it could have been that not enough false memories were inserted in the testimonies that led participants to negate the testimony and therefore not factor in the false memories.

Future research could explore the identity of the authority figure on confidence ratings when completing an assessment. Specifically police could be replaced with a more expert figure in the field, to see if people are attuning to expert testimonial identity of the police, and if they would attune and deliberate for longer if the person testifying had more expertise, such as criminologist. Additionally, it could be that the presence of anyone of a higher of authority would work, and thus if studies manipulated the identity by proposing that the president was testifying, but was not an expert in the field, the following study could see if people would give the same or more amount of scrutiny to a posttest assessment, and therefore also indicate less confidence in that condition. Research could also explore a video testimonial, which is more akin to an in-person court case, and see if the same variables have the same or different effect on participants instead of a written testimony.

This study indicates that neither the identity nor the content of the eyewitness testimony had any effect on the accuracy of participants to recall events of the same event they witnessed in their memory. This demonstrates that source monitoring does not seem to come into effect when participants can ascribe more significance to their own experience, and therefore don't have any memory discrepancies. Additionally, people seem to accurately assess their own skill level when recalling memories. In the legal system, we can be more assured that jurors are basing their decisions off of their own working memory, rather than being influenced by the status of an eyewitness testimony. Although the presence of an authority figure may impact perceived confidence in their skill level, this did not impact their accuracy significantly. Understanding people's decision making and memory when provided with multiple sources and social references can further inform how much weight should be given to eyewitness testimony in the courtroom.

References

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Appendix A

Video Stimuli

This is the video stimuli the participants saw, in order of appearance.

Figure A1. Car Crash TV. 2014. *Minor car accident caught on dashcam* [Video]. Youtube. https://youtu.be/oLYY77LPr3U

Figure A2. TBS. 2015. *Friends: Lobster (clip) | TBS* [Video]. YouTube. https://youtu.be/K05-DOiXnF0

Appendix B

Written Materials

These are the written materials participants see in varying stages of taking the survey.

How many doors does the offending vehicle have?
Do cars have their headlights on or off?
Does anyone exit their car in this video?
What color was the stoplight?
Approximately how many buses were in the video?
Does the car turning left have the signal on?
What color was the offending vehicle?
What color was the car turning that got hit?
Which side did the car get hit on?
Which way did the car turn before getting hit?

Appendix B1. Free-response questions participants were asked to answer after watching the distractor video.

You have been asked to participate in a study that is part of a psychology class research project entitled: Eyewitness Testimony and Memory.

This class project is for a Research Methods Class (Psych 117L). You may obtain answers to any pertinent questions about this research by telephoning Prof Mary Hegarty at the Psychology Department Office at 893-3750 or via e-mail: hegarty@ucsb.edu.

In this study, you will be asked to watch a short video and describe what you see. If you decide not to participate, your refusal will involve no penalty and no loss of benefits to which you are otherwise entitled. Participation in this study is voluntary, and you may withdraw your consent to participate at any time without penalty. You may skip any questions you do not wish to answer. This study is anonymous. Do not put your name or other identifying information on any information you provide.

Thank you for your time and help in completing this class project.

Do you wish to proceed?

Appendix B2. This is the informed consent form participants see upon opening the survey link.

As a course requirement for a course on Research Methods in Cognitive Psychology (Psychology 117L), our research group is interested in studying the effect of eyewitness testimony on memory recall. Thus, in the study we have participants watch a brief video of a minor car accident and report what they saw.

If you have any questions regarding the study, please ask the experimenter or contact Dr. Mary Hegarty at hegarty@psych.ucsb.edu or 893-3750. If for any reason you do not wish to have your responses used in our data analysis, please let the experimenter know. Then, we will return your work back to you and we will not include your responses in our analysis.

Thank you very much for your participation.

Appendix B3. The debrief participants saw at the end of the survey.

Bystander	**Police**

False: “A person on a jog saw the crash unfold. Now they give you their testimony: "A pedestrian walked across the street and a sedan was driving by me. It happened on a busy road. Then a white car turned left and was hit by a black car. The black car had their turn signal on and the white car did not have their headlights on."	False: “A police officer was cruising the neighborhood on a patrol when they saw the car crash unfold. Now they gives you their testimony: "A pedestrian walked across the street and a sedan was driving in front of me. Then a white car turned left and was hit by a black car. The black car had their turn signal on and the white car did not have their headlights on."
True/Control: “A person on a jog saw the crash unfold. Now they give you their testimony: "A pedestrian walked across the street and a bus was driving by me. It happened on a busy road. A black car turned left with their turn signal on and was hit by a white car without their headlights on."	True/Control: “A police officer was cruising the neighborhood on a patrol when they saw the car crash unfold. Now they gives you their testimony: "A pedestrian walked across the street and a bus was driving right in front of my car. It happened on a busy road. Then a black car turned left with their turn signal on and was hit by a white car without their headlights on."

Appendix B4. Participants saw one of four written testimonies in their survey.

Appendix B5. Participants saw these last two questions before the debrief portion of the survey asking about confidence in the accuracy of their responses and their attitude regarding authority in a yes/no format.