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Improving eyewitness testimony methods for more accurate recall of events

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IMPROVING EYEWITNESS TESTIMONY: METHODS FOR MORE
ACCURATE RECALL OF EVENTS

by

ASHLEY M. SCHACHTER

A thesis submitted in partial fulfillment of the requirements
for the Honors in the Major Program in Psychology
in the College of Sciences
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ABSTRACT

Eyewitness testimony has as long history in the court system, and is very persuasive to juries. Jurors are hard pressed to ignore a witness' assertion of a perpetrator's identity. However, the juror's perception of eyewitness testimony is problematic as it has been documented as inaccurate and unreliable in numerous experiments. With the advent of DNA testing and efforts such as The Innocence Project, it has become apparent that faulty eyewitness accounts are central to many wrongful convictions.

The intent of this thesis was to explore how law enforcement can facilitate more accurate eyewitness accounts via their interview process. Research suggests that a key problem in the current interviewing system is "post-event information," or outside information introduced by leading questions, exposure to police conversations or other witnesses' accounts. This information can contaminate a witness's memories of events and lead them to report things they did not see. The current experiment explores the effects of 1) warning and educating witnesses about suggestibility and 2) interviewing with leading or open-ended questions. Accuracy scores were then compared for each condition. The hope was to gain insight into methods for improving accurate recall of events and reducing memory contamination from "post-event information."

DEDICATION

For my loving family and friends, who never quit believing in me even when I stopped believing
in myself.

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INTRODUCTION

Eyewitness testimony has long been used in our court system to identify the perpetrator of the crime properly. This type of evidence is overwhelmingly persuasive to a jury. Juries find it hard to ignore such substantial claims as “I am certain it was that man!”, (Loftus, 1979), even when there is little additional evidence. The juror’s reliance on eyewitness testimony becomes problematic as it has been documented as inaccurate and fallible in numerous experiments.

Eyewitness testimony was regarded in high esteem until legal system until the arrival of DNA testing. (Wells, Memon, & Penrod, 2006) Suddenly, men on death row were being cleared of charges. These exonerations caused much introspection in the legal field. Many of the studies that followed have implicated faulty eyewitness identifications as the cause of the vast majority of wrongful convictions. These findings began when defense lawyers Barry Scheck and Peter Neufeld cofounded the Innocence Project in New York City in 1992 (Gould & Leo 2010). Their aim was to provide DNA testing to investigate inmates’ claims of innocence. A pattern quickly emerged when reviewing the cases of those exonerated from new DNA evidence. Inaccurate eyewitness testimony was a central theme of the cases in which there were wrongful convictions. Janet Reno stated in her report to the federal government that 26 of the first 28 exonerations were caused by errors in eyewitness recall. These significant developments have prompted 48 out of 50 U.S. states to give inmates access to DNA testing, with the only exceptions being Massachusetts and Oklahoma (Moore, 2007). In contrast, in the year 2000 only 2 states, New York and Illinois, had statutes giving inmates access to this resource. (Berger, M.A., 2006)

The potential inaccuracies of eyewitness testimony received much media attention this year regarding the case of Troy Davis. According to the New York Times, Davis was convicted for the 1989 murder of a police officer in Savannah, GA, and was scheduled for execution based on the eyewitness accounts of nine people but without physical evidence. (Editorial, 2011) Out of the nine witnesses, seven recanted in the days after the trial. Still, Davis was not pardoned and was executed. This represented a tragic consequence of our reliance on eyewitness testimony. We must further examine the methods by which this information is collected, as irresponsible or contaminating methods can have tragic consequences. It is apparent that the memory of a witness is much more delicate and unreliable than believed by the common juror.

Loftus has pioneered research on the malleability of our memory and the ease of which false memories can be created. She has discussed how our memories can easily become “scrambled”. (Loftus, 2003) For example, think of telling a story to friends. The first time one tells the story, it may be accurate. The next time, more time has passed and they remember less, so some inaccurate details may be included. With more rehearsal and repetition, the inaccurate information becomes scrambled with what is true and you believe the false details with the same confidence as those aspects that are true. While this is not a huge problem in everyday situations, the consequences can be dire when in a courtroom setting.

One reason that juries assign such weight to eyewitness testimony is that they believe our memory is heightened in times of duress or heightened emotion, such as when a crime has taken

place. This is not true. One study compared emotional true memories from participant's childhood to false memories implanted by suggestive manipulations. The goal was to ascertain if the emotional nature of past events ensured accurate recall. (Laney & Loftus, 2008)

Participants took a questionnaire at the beginning of the experiment modeled after the "Life Events Inventory" (Garry, Manning, Loftus & Sherman, 1996). This served to take inventory of past emotional experiences that the participant had experienced in childhood, such as breaking one's arm, or going on a family vacation. After this data was collected on real memories, participants were randomly assigned to 3 implanted memory conditions, "you were hospitalized overnight as a child," "you caught your parents having sex," or "you witnessed a physically violent fight between your parents." They later presented participants with personalized emotional "profiles" of important childhood events, some of which contained the false memories. Participants interacted with the material in the profiles by taking additional surveys concerning their emotional connection to the true and false events. At the end of the study, 39 of 189 participants (20.6%) developed false memories for the fabricated event. This is a high percentage when we consider that gravity of errors in eyewitness testimony. It is possible that participants may have performed better under eyewitness conditions as opposed to in the experiment. However, the findings of this research suggests that judges and jurors should resist the temptation to assign higher credibility to eyewitness testimony conveyed with emotion.

Research has also demonstrated that stress-inducing components of a crime can be directly related to decreased accuracy. For example, the use of a firearm or other weapon during a crime has been linked to decreases in witness memory. The effect results from the witness paying more

attention to the weapon than to other “peripheral details” (Saunders, 2009) In this way, memories concerning other details such as the appearance of the perpetrator suffer as they are not attended to. The witness may be distracted because they fear for their life. Weapons also attract attention in that they are shocking to see in certain settings. Saunders states: “For example, although we know that bank robberies occur from time to time, we do not expect someone to draw a weapon when we ourselves are visiting the bank. The presence of a weapon may, therefore, be contextually inappropriate.” This is another example of how, counter-intuitively, high-emotion events do not necessarily produce vivid memories.

The problem of over-valuing eyewitness testimony must be corrected. There have been many cases of mistaken identity, even death row inmates who were later released due to wrongful convictions based on eyewitness testimony. Wrongful convictions do irreparable damage as the guilty party walks free and an innocent man or woman is scarred forever. In a recent case, Stephen Cohen was exonerated after serving six years in prison for the (non-fatal) shooting of a police officer (Cole & Loftus, 2004). His conviction was based largely on eyewitness testimony of a bystander and the victim himself. New DNA identification technology cleared his name. This is just one example of the inaccuracy of eyewitness accounts, and how they are fallible even when the victim himself is testifying. In 2004, Cohen became the 141st wrongfully convicted person to be cleared by DNA evidence in the United States.

Psychologists have produced a myriad of experiments with results that call into question the accuracy of eyewitness testimony, and many are quite knowledgeable on the subject. However,

how much do professionals in the legal system know about the pitfalls of this type of evidence? In a 2009 study, U.S. prosecutors and defense attorneys were interviewed to assess their knowledge about eyewitness error. The results indicated a general bias in favor of the defense attorneys, who knew much more about the questionable nature of this evidence than prosecutors. (Wise, Pawlenko, Safer & Meyer 2009) This is logical as prosecutors tend to base their cases around such evidence whereas defense attorneys are more often trying to discredit it. The study provided a survey to both prosecutors and defense attorneys with 13 statements on it that could be identified as true or false regarding eyewitness testimony. The statements included such things as “It is significantly harder for a witness to recognize a perpetrator of a crime who is wearing a hat than one who is not wearing a hat” or “Eyewitness testimony about an event often reflects not only what the person saw but also the information obtained later from police, other witnesses, the media, etc.” In comparing accuracy scores, 80% of the prosecutors scored 3 out of 13, while 80% defense attorneys scored 9 out of 13. When asked about their beliefs on jurors knowledge of eyewitness testimony issues, only 56% of prosecutors believed juries had limited knowledge, compared to 88% of defense attorneys. These results indicate a bias within the legal system, demonstrating that lawyers are often knowledgeable on the subject if it is in their professional interest.

One study demonstrates how little juries know about eyewitness testimony (Loftus, O'Toole & Easterly). They are generally misinformed about the mechanics of memory and how it works. They also are lacking knowledge concerning how certain aspects of a crime may affect the accuracy of a witness' memory. For example, jurors are largely uneducated about how stress or

the presence of a weapon can reduce a witness' accuracy. In the study, Loftus designed a 20 item questionnaire asking potential jurors in Washington, D.C. questions regarding eyewitness testimony, and what makes a good witness and reliability of eyewitness accounts in general. For example, they asked potential jurors if the human memory of an event could be likened to a video recording of an event. This is untrue; human memory is much more selective by nature than an unbiased video recording, and certain details will stand out more than others or be susceptible to manipulation. The results showed that 52% of the participants thought this was true or were unsure. They showed similar results when asked about the presence of a weapon in crime; 77% did not answer that this would make a witness' memory less accurate and many thought it would make a witness' memories *more* vivid. They were also unaware of the similar effects of violence or stress during a crime.

These findings on juror and attorney knowledge of the problems with eyewitness testimony are significant when considering the consequences. Procedural changes should be made to better educate witnesses and attorneys.

METHODS TO IMPROVE THE VALUE OF EYEWITNESS TESTIMONY

Members of the legal community have proposed that, as a safeguard, a corroboration rule be used in capital cases (Jain, 2001). This would require at least two witnesses to agree on the identification of the perpetrator for the evidence to be admissible in cases where the death

penalty is involved. Such steps would signify the legal community's understanding of the problems with eyewitness accounts and improve the accuracy of the judicial system's decisions.

Another change that the legal system could make is to include expert testimony from psychologists on the shortcomings of eyewitness accounts in cases where the sole or the majority of the evidence is from eyewitness accounts. The expert would explain basic dynamics of human memory, the relevant scientific research concerning accuracy of eyewitnesses, and other information regarding cognitive factors that could have affected the eyewitness' recall of the event. This should help to better educate juries, so it is not so tempting to think of an eyewitness' word as concrete truths (Wise, Dauphinais & Safer, 2007). However, the courts have been very reluctant to include expert witnesses. Legal experts often feel that the testimony is unnecessary because it only relates information that the jurors already know, or that other legal processes (such as voir dire, cross examinations, and closing arguments) are sufficient to examine the validity of any eyewitness testimony. However, these court procedures have failed the legal system before, so it seems that steps must be taken to include expert testimony and better educate jurors.

The legal community often reasons that eyewitness testimony will "intrude too much on the traditional province of the jury to assess witness credibility" (United States vs. Lumpkin, 1999), since the legal requirements to include this testimony state that it "must assist the trier of fact." However, it has been shown in the aforementioned scientific literature that jurors are uneducated regarding what factors make a credible witness. In addition, the inclusion of expert testimony has

been found helpful in experiments and mock trials to influence jurors to be more attentive during testimony and it “eliminates the overbelief in eyewitness identification in situations where eyewitness accuracy rates are low”(Hosch, Beck & McIntyre, 1980). Therefore, it seems that the testimony of expert witnesses does assist jurors as triers of facts.

Although it may seem logical to include in a trial, many defendants who ask to include expert testimony about the suggestibility of eyewitnesses are denied. For example, in Utah a man named Deon Lomax Clopten was convicted of murder in the first degree from largely eyewitness evidence. He took his case to the appellate courts, who once again held that the testimony was inadmissible because juror instructions, juror ability to assess witness credibility, voir dire, and other courtroom procedure were sufficient to ensure eyewitness reliability (State of Utah, Plaintiff and Appellee, v. Deon Lomax Clopten, 2008). Finally he appealed to the Supreme Court and the decision was overturned and a new trial was ordered (State of Utah, Plaintiff and Respondent, v. Deon Lomax Clopten, 2010). The appeal process alone dragged on for two years. Expert witness testimony, which has been shown to assist jurors, should not be denied to defendants in cases where eyewitness testimony constitutes the bulk of the evidence presented.

It has also been suggested that, to improve the value of eyewitness testimony, the legal system needs to take a closer look at the manner in which eyewitness testimony and evidence are gathered. One problem is inadequate training of police officers to conduct effective interviews(Fisher & Geiselman, 2010). Law enforcers cannot control such things as the eyewitness’ visibility during the crime or whether they were traumatized by the event and

therefore less able to help. However, one thing that officers can control is the methods they use to interview witnesses. (Fisher & Geiselman, 2010)

In examining current training programs for police officers, they are often lacking in the area of interview training. To be sure, there are many necessary and important subjects that officers must be trained in. At present, most of their training focuses on efficient report writing, education about the law, court testimony, the rules of the road, handling evidence and managing crowds and conflicts between civilians (Fisher & Geiselman, 2010) These are all important aspects of the job, but considering that eyewitness evidence is so closely linked to solving crimes one would think more focus would be placed on proper intake of this information. In reality, the interviewing practices currently taught to officers have more focus on interrogating potential suspects for information or to get them to admit guilt.

Police must be trained to recognize that a diverse set of social and cognitive factors interact when people are asked to recount their version of an event as evidence. One factor that can play a huge role is suggestibility. Witnesses are highly vulnerable to the contamination of their memory of an event. During the interviewing process, the witness's memory can easily be altered if law enforcement personnel provide any outside information to the witness. This information is called post-event information (Wise, Dauphinais & Safer, 2007), and it can include information from other eyewitnesses, police officers, or any other person's memory of the event besides that of the witness. This post event information can affect a witness's recollection of everything from overall recollection of the event to details of a perpetrator's appearance such as height, weight,

hair and eye color. This information can be introduced a variety of ways, such as asking leading questions, providing confirmatory feedback to the witness, or even instructing the witness to “guess” when unsure. This post-event info has been shown to have the most negative impact on the accuracy eyewitness accounts of all variables (Loftus, 2003). Improved instructions that clearly state for the witness not to report anything that they personally did not see or are unsure of should help, and this will be explored in the current experiment.

Regarding leading questions and post-event information, there is much data to suggest that this manner of collecting information can contaminate human memories. Leading questions can be very subtly different from open or neutral questions, and still produce an effect (Loftus, 2003). The difference may only be a single word. For example, Loftus conducted an experiment in which participants viewed a video of an automobile accident and were later asked about what they saw. For example, when asking participants about the speed the cars had been traveling at, there were several versions of the question. In one, participants answered the question “How fast were the cars going when they *smashed* into each other?” and in the other, “How fast were the cars going when they *hit* each other?” The result was higher estimates of speed for the word “smashed” than “hit,” since “smashed” implies more force (Loftus, 2003). The mere presence of the word “smashed” even led some participants to falsely report that they had seen broken glass. This demonstrates the need for adequate training of officers so that they are aware of the potential impact of even the smallest of word changes as they question eyewitnesses.

An egregious example of post-event information can be found in the recent Troy Davis trial. The New York Times reported that witnesses' memories were thoroughly contaminated before they made their statements. Police were accused of reenacting the crime in front of witnesses before they were interviewed to give their official statements. This procedure resulted in a false cohesiveness of all the eyewitness accounts. They also are said to have exposed witnesses to a photo of Davis before the official lineup (Editorial, 2011). With the presence of all of this outside (and potentially incorrect) information it becomes impossible to distinguish police speculation from what witnesses really saw. Especially when the death penalty is a possibility, the Troy Davis case is a prime example of how eyewitness cases should never be handled and a call for change in police practices.

IMPROVING LAW ENFORCEMENT INTAKE OF INFORMATION

It is apparent from such cases as the case of Troy Davis that law enforcement must be properly educated on how to interview witnesses, and there is much room for improvement in this area. An effective interview based on relevant psychological knowledge can make all the difference in determining the success or failure of an investigation. In spite of this, our current training for officers in the area of witness interviews is lacking. Because of this, law enforcement officials often make easily preventable errors in their interviewing and thus gather significantly less information from witnesses than what is possible. They may also unintentionally contaminate the witnesses memory through poor interviewing tactics. (Fisher, 2010)

Fisher argues that to be more effective, law enforcement should be integrating relevant information obtained in scientific experiments concerning what constitutes an effective interview. He mentions that the current police interviewing techniques are inferior and are just starting to benefit from the results of research. One study examined the state of these interviews and found some startling results (George & Clifford, 1992). The investigators found that one of the main problems with the intake interviews was the use of multiple abrupt, close-ended questions(Fisher, 2010). For example, asking “Did he have a gun?” as opposed to “Describe the robber” allows for only a concise yes or no answer, does not allow the witness to freely recall information, and encourages guessing if the witness is unsure. Fisher also notes that along with close-ended wording, many interview questions contained suggestive language (much like in the Loftus experiment, when she used the word “smashed” rather than “hit” to describe a car collision and led participants to exaggerate speed).

Fisher notes that another component often missing from these interviews is the development of a rapport between the law enforcement officials and the witness. Making the witness feel comfortable is quite valuable when gathering sensitive information. One of the reasons for this is that witnesses are often asked to recall high-stress, highly emotional events that may be difficult to relive. Development of trust between the two parties can often encourage the witness to “go through the mental effort and emotional distress of describing crime-related details” (Fisher, 2010). The idea is that although the police officer is an authority figure, the witness is a valuable resource of knowledge about the event and should have more control over the interview process. Unfortunately, many of these interactions are often marked by the dominance of the officer, who may ask a wealth of short, close-ended questions and even interrupt the witness during the dialogue.

Another common problem with the current interview methods is the delay between when an event happens and when the information is collected (Gabbert, Hope & Fisher, 2008).

Theoretically, witnesses should be interviewed in the shortest amount of time possible after a crime takes place. In reality, time often slips away for days before a witness can be interviewed, especially if there is a large number of people who were present at the scene of the crime. The problem is that human memories are so delicate and vulnerable during this time, and are susceptible to contamination from post-event information and decay. This may not affect all aspects of memory, as basic elements may remain intact (i.e., time of day, location, etc.) but details are at high risk for fading or changing altogether.

A new interview tool has emerged and is being studied to compensate for these delay effects. It is called the Self-Administered Interview or SAI. This is a booklet given to witnesses immediately after an event that contains questions or prompts and spaces for witnesses to fill in all the information they can recall after a crime. For example, they may write out everything they can remember, no matter how insignificant it may seem, about the appearance of the criminal. Or they may be asked to draw a reconstruction of the crime in as much detail as they can recall. The intention here is to gather a detailed initial statement from the witness before the formal interview takes place and too much time has passed.

THE COGNITIVE INTERVIEW

Other tools to improve the quality of witness interviews are being developed as well. One relatively new method proposed by psychologists to improve collection of eyewitness data is called the cognitive interview. Replacing the current form of collection with this method would greatly increase the veracity of eyewitness accounts. Here, witnesses are asked only open-ended questions. They are also asked to recall everything they can about the event, whether or not it may seem significant. Other mnemonic devices are used to create better memory for the event, such as having the witness draw the event rather than verbally recount it, or having the witness recall details of the event in different sequences. These interviews are much slower paced, and have less distractions than typical interviewing processes (Wise, Dauphinais & Safer, 2007).

The general theme of the cognitive interview is to place more control in the hands of the witness. The cognitive interview also aims to respect the limitations of witness' mental capacity. In traditional interviews, witnesses can be bombarded by short, close-ended questions. The officer may start with an open-ended question (i.e., "Describe the robber for me please?") and then quickly cut off witness' once they have begun talking, punctuating their train of thought with a short, close-ended question (i.e. "Was he black or white?"). This is not conducive to an accurate recollection of events. People can only attend to so many tasks at once.

In cognitive interviews, officers are encouraged to ask a smaller number of open-ended questions and allow more time for witnesses to answer while listening attentively and refraining from

interrupting. Additionally, witnesses should be encouraged to mentally recreate the event. In a CI, the importance of mentally reconstructing one's emotions and sensory experiences is stressed. Witnesses are encouraged to close their eyes, which is said to lessen visual distractions (Fisher & Geiselman, 2010) as they focus on their memory of the event.

Additionally, there is more respect for the emotional state of the witness in a CI as opposed to the traditional interview. This helps to build rapport between the officer and the witness. Current protocol often leads officers to be dismissive of the emotional content of witness's memories, because they are not directly related to the investigation. However, it is important that witnesses be allowed to express their emotions. This has value in building rapport with the interviewing officer, who may be able to gather more information by establishing a sincere, caring environment. If the witness becomes emotional during the interview, the best practice is for the officer to be encouraging and understanding, and allow the witness to pause if needed. They may be trained to offer such statements as: "From what you are describing, I can see how you would be feeling..." "That sounds really difficult," etc. (Fisher & Geiselman, 2010). These statements show similarity to what a therapist might say, and are designed to make witness' feel more comfortable and understood. In this more respectful and slower paced environment, the witness feels more in control and thus often provides more information than what is elicited in mechanical, results driven interviews.

Another method that is employed in the cognitive interview is called "multiple retrieval" (Fisher & Geiselman, 2010) The basis of this technique is the fact that we recall more details of an event

the more often we are called upon to recollect it. Using this idea, officers conducting a CI may ask witnesses to recreate the event several times throughout the interview, often in varied contexts, to create a complete picture of the event. In addition, officers are trained to recognize that witnesses will often continue to think about an event for some time after its occurrence, and are encouraged to conduct post-interviews and inquire if they witness has thought of anything else.

The cognitive interview also allows witnesses to reconstruct the scene of the crime by non-verbal means. Traditionally, all information acquired within a police interview is acquired verbally. However, other methods are encouraged within the context of the CI. For example, if the questions are largely surrounding a series of actions, it may be appropriate for witnesses to act out or role play some of what happened. In addition, if the witness is trying to recall spatial details such as the locations of objects or people during a crime, they may be encouraged to draw a diagram or sketch representing what they remember (Fisher & Geiselman, 2010).

RESEARCH OBJECTIVES

The purpose of the following experiment is to further explore how to improve the validity of eyewitness information. There have been many studies that focus on the holistic use of the techniques described in the cognitive interview. However, although the practices detailed as components of the CI are known to work together to create improved eyewitnesses' accounts, less research has been done on the individual components of the CI when functioning alone (Fisher, 2010).

For example, although studies show that establishing rapport, encouraging the witness to lead the interview, warning witnesses about suggestibility, encouraging non-verbal communication and asking open-ended questions work as well as a whole, what if we only did one or two of these things? Testing only specific aspects of the CI will help to pare down the most effective components of the CI. It will also allow for smaller, more gradual changes to be made to police-work. We hope to isolate these two components because they represent relatively minor changes that could be made to the way current interviews are conducted. As such, even if police departments are not ready to fully convert to the cognitive interview style of questioning, they could easily adopt these two small changes if shown to be effective on their own.

This study will explore two discrete components of the cognitive interview method: 1) educating the eyewitness about suggestibility and encouraging participants to describe *only* what they are confident they saw and 2) the type of questions in the interview process, leading or open-ended. These two components will be analyzed along with the ultimate accuracy of the witness on the questionnaires.

METHOD

PARTICIPANTS

Via the online research participation system (SONA) at University of Central Florida, 88 undergraduate students were recruited to participate in this study. Participants were required to meet an age minimum of 18 years of age to participate. Students from various racial and ethnic backgrounds were included in the sample. An informed consent form was provided for participants to read, stating the objectives and possible risks at the outset of the study. They were then prompted to click to agree if they wished to continue with the experiment.

APPARATUS

Students were able to use their own personal computers to complete the study at home or a campus computer.

DESIGN

The experiment used a 2x2 between groups factorial design. The independent variables were 1) whether the participant was warned about suggestibility and accuracy and 2) the style of questions used at the end of the experiment to obtain the participant's recollection of events. The dependent variable was the accuracy score on the final questionnaire.

MATERIALS AND PROCEDURE

VIDEO: SURVEILLANCE TAPE

A video of surveillance tape footage was shown to participants. The video was roughly 2 minutes in length, and featured a young woman in a black t-shirt and denim shorts shoplifting in a beauty supply store, using a large black tote to conceal merchandise. Participants were asked to watch

the video attentively. A video with a short length was selected to account for the fact that many crimes that are witnessed are brief events, as often the perpetrator wishes to leave the scene of the crime quickly.

DISTRACTOR TASK

Following the video, participants were redirected to a word scramble distractor task. 10 anagrams, or scrambled words, were presented to participants with increasing difficulty. Participants were provided with a black space below the word to fill in the solution to the anagram. The duration of this task was roughly 5 minutes.

WARNING

Following the distractor task, half of the participants were randomly selected to receive a warning before the questionnaire was administered. The warning advised participants to only report exactly what they had seen. It also advised them not to be swayed by outside information or a desire to be helpful, but rather to try to be as accurate as possible.

QUESTIONNAIRE

Following either the warning or the distractor task, participants were randomly assigned to complete one to two questionnaires. The first type is a questionnaire featured leading questions. Each question was designed to contain some type of “post-event information” or leading word choices. For example, rather than asking “Where did the video take place?”, the participants would be asked, “Did the events take place in a department store?”. In this way, they were exposed to inaccurate post-event information.

The second type of questionnaire featured open-ended questions. In this version of the questionnaire, the questions were very neutral, and started with words such as “how”, “what” and “when” that would elicit more than a simple yes or no response. For example, instead of asking “Was the girl in the video shoplifting?” participants would be asked “What did you notice the girl in the video doing?”

The hypotheses for the current experiment are as follows: 1.) Scores in the open-ended question group will be higher than scores in the closed questions group. 2.) Scores in the warning condition will be higher than the no warning condition. 3.) Scores in the combined warning and open questions condition will be higher than any of the other three conditions.

RESULTS

A between groups ANOVA was used to examine overall score (out of 10 possible correct answers) and the types of questions used and warning given. The results indicated a main effect for type of questions used ($F(1, 84) = 22.40, p < .01$), with participants in the open ended questions condition scoring higher ($M = 9.28, SD = 1.40$) than participants in the closed questions condition ($M = 7.76, SD = 1.73$). There was also a significant interaction effect between the two variables ($F(1, 84) = 31.56, p < .01$). In contrast, the results did not indicate a significant main effect for the presence of a warning alone ($F(1, 84) = 0.79, n.s.$)

In the open ended condition, the presence of a warning did yield a higher mean score ($M = 9.76, SD = 0.56$) than the lack of a warning ($M = 8.82, SD = 1.81$), indicating that those in the combined warning present and open-ended questioning condition performed the highest of all four groups. An independent samples t-test was conducted to compare the scores in the open questions/ with warning condition and the open questions/no warning condition. The results indicated a significant difference between the two conditions ($t(32) = 2.04, p < 0.05$). These results suggest that a warning had a positive effect on overall scores of participants in the open ended questions condition.

The reverse pattern of results was seen in the close ended condition; participants who received a warning had lower mean scores ($M = 7.00, SD = 1.90$) than those who did not receive a warning ($M = 8.52, SD = 1.12$). In fact, the close ended questions with warning performed the worst of all

four groups. Another independent samples t-test was conducted to determine if the overall score differences between the closed questions/ with warning and closed questions/ no warning conditions were statistically significant. The results indicated that there was a significant difference between the two groups ($t(52) = -3.57, p < 0.01$). These results suggest that for participants in the closed questions condition, a warning had a negative impact on their overall score.

Additionally, a score (out of 5) was compiled for several parallel key items in each type of interview. These details were determined to yield the most variable responses and therefore were most susceptible to post-event information and contamination. These five items included one question regarding each of the following: 1) Where the crime occurred, 2) How the shoplifter concealed the merchandise, 3) The shoplifter's hair length or color, 4) The shoplifter's apparel, and 5) The number of people in the store when the crime occurred. There were parallel questions that were simply phrased differently in both the open and close ended questions conditions.

When examining only these key items, results again indicated a main effect for the question type ($F(1, 84) = 56.47, p < .01$) with participants in the open ended questions condition strongly outperforming ($M = 4.68, SD = 0.59$) those in the close ended condition ($M = 3.04, SD = 1.29$).

Once more, a significant interaction effect was seen between the two variables ($F(1, 84) = 10.56, p < .05$), but there was no main effect for warning ($F(1, 84) = 3.57, n.s.$).

DISCUSSION

DATA ANALYSIS

The data indicate that the first of the hypotheses was supported; those in the open ended questions group scored significantly higher than those in the close ended questions group. This is a clear indicator that this style of questioning, put forth in models like the CI, should be used in police investigations. It would require little training and only a small shift in police procedure to accomplish this very realistic goal.

It is interesting that the second hypothesis, that the participants in the warning condition would perform better, did not hold true for participants as a whole. Specifically, those in the close ended questions condition tended to score lower when a warning was provided versus not.

However, there was also a significant interaction between the two independent variables. These results could be attributed to several things. The warning read as follows:

“The following questionnaire is based on the video that you watched at the beginning of this experiment. Please provide answers that reflect only exactly what you saw. It is important not to be swayed by the interview questions, a desire to be helpful, or anything else as you report what you witnessed. Try only to be as accurate as possible.”

It is possible that students focused mainly on the last statement (“be as accurate as possible”) rather than the front portion of the warning, and this wording may have been too forceful. They may have interpreted it to mean that they were *compelled* to share something helpful. In future experiments, it may be useful to change this wording.

The warning may also have been more effective if it contained a brief history or background information on the shortcomings of eyewitness testimony, the suggestibility of our memories, and the significance to the legal field. It could have been shared that faulty eyewitness accounts are the leading cause of wrongful convictions. However, since this experiment was conducted entirely online by a student population often rushing through these projects, the choice was made to keep the warning brief and specific only to the experiment at hand. In the future though, it would be interesting to see if this background information could be more persuasive than a general warning. It would also be interesting to compare the time it takes participants to complete the questionnaire with this enhanced warning. One could examine whether the enhanced warning leads participants to slow down, and thereby become more accurate in their responses. If this were true, it might be something that could be incorporated into police interviews.

One reason it may have affected the participants in the close-ended group more is their answer choices. The questionnaires were provided in multiple choice format and participants were typically choosing from one of two answers, one of which was correct and one which was incorrect. There was not an “I don’t know” or “I’m not sure” option provided. The questionnaires were designed in this manner to simplify scoring so that overall scores could be compared more easily.. In the future, however, it might be useful to include this option, and to examine whether the warning made participants more comfortable with saying they are unsure

rather than guessing incorrectly. The number of unsure answers could thus be used as an independent variable.

There was a difference in the closed versus open ended questions groups concerning the warning. In the close ended condition, participants averaged a lower score with a warning than without. In contrast, participants in the open questions condition averaged higher scores with a warning than without. This could merely be attributed to differences in completion time; research indicates that open-ended questions require more brain functioning and processing than a close ended question because the subject must recreate the scene (Fisher, 2010). That, combined with the warning, may have led to participants paying more attention and giving more effort to the survey than those in the close-ended condition, who could more easily breeze through the survey with little attention.

In examining item responses, certain details were much more susceptible to manipulation by suggestion than others. For example, the apparel of the shoplifter. The shoplifter was wearing shorts and a black t-shirt. In the close-ended condition, the question regarding her apparel (“Was she wearing a denim skirt?”) resulted in 39% of the responses being incorrect. In comparison, the open question (“What was the girl in the video wearing?”) resulted in only 6% of the responses being incorrect. Whether or not the girl was alone in the store was also highly susceptible. In the open ended condition, participants were asked how many people were in the video and 91% were able to correctly identify that three people were in the store. In contrast, participants receiving close ended question stating “Was the girl alone in the store?” were only 88% correct, with 22%

mistakenly thinking that she was alone. The hair length/color of the shoplifter, location of the crime, and the shoplifter's method of concealment showed similar results, varying much more than the questions regarding whether or not she stole, how many items (if any) she took, or which items she handled and/or stole. The results suggest that peripheral details were most vulnerable. Participants remembered that she stole, what she took etc. but were lacking important peripheral details about her appearance, apparel or other possible witnesses or accomplices in the store that would be helpful in tracking down a criminal.

A key item score was compiled (out of 5 items) to more closely examine these vulnerable items. The results followed the trends of the overall scores, with participants in the open ended group averaging close to 5 out of 5 with a mean score of 4.68 while those in the close ended group averaged 3.04. These differences on these key items present a compelling case for change in questioning methods in the police force. The witnesses should be questioned an open-ended manner, and should be doing most of the mental labor in recreating the scene as suggested in previous studies (Fisher, 2010) and be allowed to take their time. These key items, while more peripheral, would contribute to the success of a police investigation.

FUTURE RESEARCH

In the future, it would be interesting to explore other methods for improving witness performance in interviews. For example, it has been suggested that since each witness will remember an event differently, the cognitive interview should be uniquely tailored to their

memory of an event rather than conducted as a standard set of questions for all witnesses (Fisher, 2010) If one witness seems to recall more details about the getaway car at the scene of the crime than other details, it may be best to continue this line of questioning rather than jumping to another area of investigation. This can be difficult, since law enforcement officials are often tempted to conduct the interview in a manner tailored to what they need for their report rather than what is compatible with an individual witness' mental reconstruction of a crime. (Fisher, 2010). A face-to-face experiment might be designed to test this idea, perhaps with the investigator following the participants' cues during the interview to investigate methods for gathering the most accurate information.

One thing that has yet to be explored is the possible correlation between adopting new interviewing methods such as the cognitive interview and the probability of success in those investigations (Fisher, 2010). One difficulty is that it can be difficult to determine exactly if one component of an investigation was the primary reason for its success. However, a longitudinal or correlational study could provide evidence to motivate change in the law enforcement field.

TRAINING TO IMPLEMENT CHANGE IN THE LAW ENFORCEMENT FEILD

In the end, the information gathered in such as the present one is most valuable if the legal system is willing to incorporate the scientific information uncovered. Law enforcement officials require motivation before changes can be made and should be motivated through education about

the positive results these changes can yield. Trainees should be exposed to the underlying scientific research that supports these new techniques to persuade officers of the validity and ultimate value of implementing change. For example, the present experiment and others suggest that using open-ended questions is of utmost importance in interviewing witnesses. Experiments such as this one should be presented to trainees so that they understand the reasons behind conducting their interviews without reliance on close-ended questions. Perhaps a similar experiment could be conducted on the officers themselves to demonstrate how close-ended questions can lead to contamination.

Looking towards the future and how findings like those in the present study can be used, it is important to develop a concrete method to integrate these findings into police interview training. Research suggests it will be most effective to provide hands on, interactive examples of effective interviewing techniques rather than simply having participants memorize new procedures from written material. (Fisher, 2010) They should be given the opportunity to role-play new behaviors after watching them be performed by someone else. Additionally, examples of ineffective or incorrect behaviors should be demonstrated so officers can learn what they are trying to avoid and why. Role-playing scenarios should be modeled to closely resemble real case situations, so that the new techniques are seen as valuable to real, on the job situations rather than as abstract or theoretical. Feedback should be immediately provided after each exercise to allow for directed improvement. In addition, refresher courses could be offered as continuing education on the topic of interviewing witnesses. This would help to avoid decay of the material learning in the initial training sessions. (Fisher, 2010)

In conclusion, the scientific research on eyewitness suggestibility as well as the experiment conducted here make a compelling call for change. The legal and psychological communities would be well served to work in conjunction with one another. Although the legal field is steeped in tradition and often resistant to change, the scientific evidence clearly suggests that certain changes would be mutually beneficial to the courts and society as a whole.

APPENDIX A: IRB APPROVAL LETTER

*APPENDIX A:
IRB APPROVAL LETTER*

Approval of Human Research

From: UCF Institutional Review Board #1 FWA00000351, IRB00001138

To: **Matthew G. Chin. and Co-PI: Ashley M. Schachter October 19, 2011**

Date: **10/19/2011**

Dear Researcher:

On 10/19/2011, the IRB approved the following human participant research until 10/18/2012 inclusive:

Type of Review: UCF Initial Review Submission Form

Project Title: Improving Eyewitness Testimony: Methods for More Accurate Recall of Events

Investigator: Matthew G Chin, Ph.D.

IRB Number: SBE-11-07935

Funding Agency:

Grant Title:

Research ID: n/a

The Continuing Review Application must be submitted 30days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at <https://iris.research.ucf.edu> .

If continuing review approval is not granted before the expiration date of 10/18/2012, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a copy of the consent form(s).

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual. On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., CF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 10/19/2011 03:23:28 PM EDT

IRB Coordinator

**APPENDIX B: INTERVIEW QUESTIONNAIRE: OPEN-ENDED
QUESTIONS**

APPENDIX B:
INTERVIEW QUESTIONNAIRE, OPEN QUESTIONS

This is the questionnaire that participants will complete if they have been randomly assigned to the open-ended questions condition. Questions will be presented one at a time.

Where did the events in the video take place?

What did you notice the girl in the video doing?

What was the girl in the video wearing?

What color hair did she have?

What length was her hair?

What (if anything) did she take?

How did she conceal the merchandise?

How many (if any) items did she take?

What (if any) other items did she handle?

How many people were in the video?

APPENDIX C: INTERVIEW QUESTIONS, CLOSE ENDED QUESTIONS

*APPENDIX C:
INTERVIEW QUESTIONNAIRE, CLOSE ENDED QUESTIONS*

This is the questionnaire that participants will complete if they have been randomly assigned to the leading questions condition.

Did the events in the video take place in a department store?

Was the girl in the video shoplifting?

Did she steal two bottles of hairspray?

Did she shoplift several times throughout the video?

Did she use a black backpack to conceal merchandise?

When did she conceal the flat iron in her bag?

Was her hair shoulder length?

Can you confirm that her hair light brown?

Was she wearing a denim skirt?

Was the girl alone in the store?

APPENDIX D

APPENDIX D: SPSS OUTPUT, DESCRIPTIVE STATISTICS

*APPENDIX D:
SPSS OUTPUT, DESCRIPTIVE STATISTICS*

Descriptive Statistics				
Dependent Variable: Overall Score				
Question Type	Warning	Mean	Std. Deviation	N
Open Ended	Warning	9.7647	0.56230	17
	No Warning	8.8235	1.81091	17
	Total	9.2941	1.40409	34
Closed	Warning	7.0000	1.90142	27
	No Warning	8.5185	1.12217	27
	Total	7.7593	1.72589	54
Total	Warning	8.0682	2.03913	44
	No Warning	8.6364	1.41571	44
	Total	8.3523	1.76843	88

**APPENDIX E: SPSS OUTPUT, TESTS OF BETWEEN SUBJECTS
EFFECTS**

*APPENDIX E:
SPSS OUTPUT, TESTS OF BETWEEN SUBJECTS EFFECTS*

Tests of Between-Subjects Effects					
Dependent Variable: Overall Score					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	87.809 ^a	3	29.270	13.343	0.000
Intercept	6067.514	1	6067.514	2765.891	0.000
QuestionType	49.150	1	49.150	22.405	0.000
Warning	1.739	1	1.739	0.793	0.376
QuestionType * Warning	31.557	1	31.557	14.385	0.000
Error	184.270	84	2.194		
Total	6411.000	88			
Corrected Total	272.080	87			
a. R Squared = .323 (Adjusted R Squared = .299)					

REFERENCES

- Berger, M. A. (2006). The impact of DNA exonerations on the criminal justice system. *Journal of Law, Medicine & Ethics*, 34(2), 320-327.
- Editorial. (2011, Sept 20). A grievous wrong. The New York Times. Retrieved from <http://www.nytimes.com/2011/09/21/opinion/a-grievous-wrong-on-georgias-death-row.html?scp=2&sq=troy davis&st=Search>
- Fisher, R. (2010). Interviewing cooperative witnesses. *The British Psychological Society*, 15, 25-38.
- Fisher, R. P., & Geiselman, R. (2010). The Cognitive Interview method of conducting police interviews: Eliciting extensive information and promoting Therapeutic Jurisprudence. *International Journal of Law & Psychiatry*, 33(5/6), 321-328.
doi:10.1016/j.ijlp.2010.09.004
- Garry, M., Manning, C., Loftus, E., & Sherman, S. (1996). Imagination inflation: Imagining a childhood event inflates confidence that it occurred . *Psychonomic Bulletin and Review*, 3(2), 208-214. Retrieved from <http://www.springerlink.com/content/d103371038tgl301/fulltext.pdf>
- Gould, J. B., & Leo, R. A. (2010). One hundred years later: wrongful convictions after a century of research. *Journal of Criminal Law & Criminology*, 100(3), 825-868
- Hosch, H., Beck, E., & McIntyre, P. (1980). Influence of expert testimony regarding eyewitness accuracy on jury decisions. *Law and Human Behavior*, 44(4), 287-296. Retrieved from <http://www.springerlink.com/content/10639357m4614t00/fulltext.pdf>

- Jain, M. (2001). Mitigating the dangers of capital convictions based on eyewitness testimony through treason's two-witness rule. *The Journal of Criminal Law and Criminology*, 91, 3.
- Laney, C., & Loftus, E. (2008). Emotional content of true and false memories. *Memory*, 16(5), 500-516.
- Loftus, E. F. (1979). Lost in the mall: Misrepresentations and misunderstandings. *Ethics & Behavior*, 9(1), 51.
- Loftus, E. (2003). Make believe memories. *American Psychologist*, (Nov), 867-873.
- Loftus, E., O'Toole, T., & Easterly, C. (n.d.). Juror understanding of eyewitness testimony: A survey of 1000 potential jurors in the District of Columbia. Retrieved from <http://www.pdsdc.org/Resources/SLD/PDS> Poll - Juror Knowledge of Eyewitness Factors - article by Dr. Elizabeth Loftus and Tim O'Toole.pdf
- Loftus, E. (2003). Science and society: Our changeable memories: Legal and practical implications. *Nature Reviews Neuroscience*, 4(3), 231.
- Memon, A., Hope, L., Bartlett, J., & Bull, R. (2002). Eyewitness recognition errors: The effects of mugshot viewing and choosing in young and old adults. *Memory & Cognition*, 30(8), 1219.
- Moore, S. (2007, October). DNA exoneration leads to change in legal system. *New York Times*. p. 1.
- Saunders, J. (2009). Memory impairment in the weapon focus effect. *Memory & Cognition*, 37(3), 326-335. doi:10.3758/MC.37.3.326
- State of Utah v. Deon Lomax Clopten, 223 P.d1103, 645 (Utah Adv. Rep. 51 2010)
- State of Utah v. Deon Lomax Clopten 205, P.3d1004, 605 (Utah Adv. Rep 8 2008)

United States v. Lumpkin, 192 F.3d 280, 289 (2d Cir. 1999)

Wells, G., Memon, A., & Penrod, S. (2006). Eyewitness evidence: improving its probative value.

Psychological Science in the Public Interest, 7(2), 45-75.

Wise, R. A., Pawlenko, N. B., Safer, M. A., & Meyer, D. (2009). What US prosecutors and

defence attorneys know and believe about eyewitness testimony. *Applied Cognitive*

Psychology, 23(9), 1266-1281. doi:10.1002/acp.1530

Wise, R. A., Daughinai, K. A., & Safer, M. A. (2007). A tripartite solution to eyewitness error.

Journal of Criminal Law & Criminology, 97(3), 807-871.