DOES CROSS-EXAMINATIION HELP JURORS DETECT DECEPTION?

by

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Abstract

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by

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Both the Constitution and case law establish cross-examination as a crucial method for eliciting testimony that will assist fact finders in determining the truthfulness of a witness's testimony. Despite the legal system's faith in the efficacy of cross-examination as a safeguard against deceptive witnesses, no studies have tested the assumption that cross-examination will help jurors discriminate between truthful and false testimony. The cross-examination strategies that trial technique manuals advocate are based on commonsense notions of human behavior, but these strategies have not been empirically tested to determine if they help jurors accurately discriminate between truthful and lying witnesses. Although traditional cross-examination techniques have not been empirically studied, psychological research has identified specific strategies that improve laypeople's ability to detect deception when viewing an interrogation of a suspect. The present research examined the effectiveness of currently employed cross-examination techniques in determining the truthfulness of a witness's testimony. In addition, the traditional cross-examination techniques were tested against cross-examination strategies that were based on techniques derived from the deception detection literature. In the first phase, 106 participants either witnessed a confederate steal a wallet or they were not exposed to the theft. In phase II of the experiment, I manipulated participants' motivation to either lie or tell the truth about what they saw. Witnesses' direct and cross-examinations were videotaped in a mock courtroom, and witnesses either underwent a traditional cross-examination, a cross-examination based on deception detection research, or no cross examination. In phase III of the study each of the witnesses' examinations were edited into the larger context of a theft trial. Mock jurors viewed the trial and provided veracity judgments for each of the witnesses and rendered a verdict. Although behavioral differences were observed between deceptive witnesses who underwent a research based cross-examination and deceptive witnesses who underwent a traditional cross-examination, cross-examination type did not influence jurors' evaluations of witness truthfulness. Implications for the legal systems and future research directions are discussed.

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER ONE

The 6th Amendment to the US Constitution provides criminal defendants with guaranteed rights to ensure a fair trial, including the right to confront witnesses who will testify against them. Part of the 6th Amendment known as the confrontation clause states that witnesses providing evidence against a defendant must be physically present in court to present their testimony. A witness's presence in court affords the defendant the opportunity to cross-examine the witness. The courts have long believed cross-examination to be an essential method for providing the jury with information that will help them to evaluate the veracity of a witness's testimony. Three years after the ratification of the 6th Amendment, the Supreme Court affirmed in *State v. Webb* (1794) that cross-examination 'is a rule of the common law, founded on natural justice that no man shall be prejudiced by evidence which he had not the liberty to cross examine" (p. 1).

Since that time numerous decisions have affirmed the court's strong belief in the need for cross-examination to assist jurors' judgments of the reliability of testimony. A number of these cases have addressed the right to confrontation in the context of hearsay evidence. Hearsay evidence constitutes statements made by an in-court witness (i.e., the hearsay witness) that assert the truth of what another person who is not present at trial (i.e., the declarant) has said. In general, courts are wary of admitting hearsay testimony because they believe that the truthfulness of the information presented cannot be assessed without the ability to cross-examine the out-of-court witness on which the hearsay witness's testimony is based.

The Supreme Court reiterated the importance of cross-examination in *Crawford v. Washington* (2003), a recent case in which the admissibility of hearsay evidence in the form of a tape recorded statement of the defendant's wife was contested. The Court ruled that a judge's determination of evidence reliability is not sufficient, and that "Far from obviating the need for cross-examination, the 'interlocking' ambiguity of the two statements made it all the more imperative that they be tested to tease out the truth….., where testimonial statements are at issue, the only indicium of reliability sufficient to satisfy constitutional demands is the one the Constitution actually prescribes: confrontation." (pp. 18, 20) As part of the adversarial process, the courts assume that the techniques used to confront a witness during cross-examination will reveal the reliability and veracity of the witness's statement. This belief in the efficacy of cross-examination is so strong, that the famous legal scholar, John Henry Wigmore (1974), stated that cross-examination is "beyond any doubt the greatest legal engine ever invented for the discovery of truth." Wigmore's assessment of cross-examination has been quoted by several Supreme Court Justices in their justification for the necessity of cross-examination (*Lilly v. Virginia*, 1999; *White v. Illinois*, 1992; *California v. Green*, 1970)

Although the courts have high expectations for the utility of cross-examination, there has yet to be a systematic empirical investigation of cross-examination's effectiveness in assisting jurors' evaluations of testimony. There are multiple components to a witness's testimony that the legal system believes cross-examination will address, including the credibility of the witness, the accuracy of the witness (i.e. the accuracy of an eyewitness's identification of the defendant), and the truthfulness of the witness (i.e. deliberate deception). Some psychological research has begun to examine whether cross-examination is an effective method of evaluating a witness's credibility and a witness's accuracy, but no empirical research has tested the court's assumption that cross-examination will uncover deceptive witnesses. In addition, although the majority of trial technique manuals advocate specific cross-examination strategies, no empirical evidence is offered in support of the manuals' claims of strategy effectiveness. The current research examined whether cross-examination strategies allow jurors to discriminate between truthful and fabricated testimony. To inform hypotheses about the utility of traditional cross-examination methods and to identify possible new effective cross-examination strategies, trial technique manual recommendations for conducting cross-examination will be reviewed and compared to deception detection research on interrogation methods, as well as the small existing body of psycho-legal research on cross-examination.

Legal Approaches to Cross-Examination

Goals of cross-examination

Attorneys may conduct cross-examination with several goals in mind. First, if the witness possesses information that is helpful to the opposing side, the opposing attorney may begin the cross-examination by attempting to elicit that information. Trial strategy manuals (Haydock & Sonsteng, 1999; Kestler, 1982; Melton, 1988; Mauet, 2002; Wellman, 1997) argue that this goal should be pursued early in a cross-examination as the witness should be most credible after direct examination but before the damaging portions of cross-examination have begun. Second, opposing counsel may choose to conduct a destructive cross-examination of the witness that is designed to elicit testimony that will damage the credibility of the witness. The destructive portion of the cross-examination is essentially designed to allow the trier of fact to assess credibility, accuracy, and truthfulness on the part of the witness and to judge the degree to which they will consider the testimony in their decision-making process.

When conducting the discrediting portion of cross-examination, the lawyer may approach discrediting the witness in two different ways. The lawyer may attempt to attack the content of the witness's testimony by posing questions that create doubt about the witness's memory, perceptions of the events, or ability to communicate during testimony. This practice is referred to as *increasing the improbabilities* (Mauet, 2002, p. 226). The lawyer may also choose to discredit the conduct of the witness by pointing out inconsistencies between the witness's account of the events and his or her conduct.

The crowning moment in a trial lawyer's cross-examination would be to impeach the witness. Impeachment demonstrates to the jury that the witness cannot be believed. According to one trial technique manual, "jurors enjoy seeing a witness get 'caught' changing his story" (Mauet, 2002, p. 234). Lawyers may impeach witnesses by exposing their bias or partiality .Bias may be exposed by questioning witnesses about any interest they may have in a particular outcome for the case. Lawyers may also question witnesses' motives behind their actions during the event, or attack their credibility by asking about prior convictions or prior bad acts. Lawyers may also impeach witnesses by pointing out inconsistencies between their prior statements and their current testimony. The steps to accomplish this impeachment strategy include getting witnesses to recommit to the statement that they made during previous testimony (without raising red flags in the witnesses' minds), posing follow up questions that stress the importance of this information, reading to the witnesses their prior inconsistent statement, and finally projecting a negative attitude toward this inconsistency so that the jury will know the witness is not to believed. The lawyer may also address evidence that is contradictory to the witness's testimony during cross-examination. Previous research indicates that jurors rely on consistency of a witness in their evaluations of witness testimony. When witnesses are inconsistent in their statements, mock jurors assign lower credibility ratings to the witnesses and are more likely to find for the defendant (Semmler & Brewer, 2002). When attempting to impeach a witness, trial manuals instruct lawyers to avoid attacking the witness too harshly. This harsh treatment may cause the jury to react against the lawyer instead of the witness. Rather the lawyer is instructed to use subtlety, and the jury will "appreciate your good taste and reach the proper conclusion on its own" (Mauet, 2006, p.236).

"Rules" of cross-examination and commonly employed techniques

Trial technique manuals specifically outline many of the most commonly employed techniques for attorneys to use when conducting a cross-examination of a witness (Haydock & Sonsteng, 1999; Kestler, 1982; Melton, 1988; Mauet, 2002; Wellman, 1997). Most of the questioning techniques are based on commonsense notions of human behavior that have not been empirically tested to determine their effectiveness. Although the manuals provide many anecdotal instances in which a well posed lines of questioning result in an effective cross-examination, the manuals do not provide attorneys with any empirical evidence to support the methods they are prescribing. Across the trial technique manuals sampled, attorneys were consistently instructed to conduct a cross-examination by posing closed-ended, leading questions to the witness and to introduce the damaging portion of the cross-examination with strong attacks on the witness,. A comparison of some of the most commonly employed cross-examination techniques to the findings of empirical psychological research follows.

One of the basic tenets of traditional cross examination asserts that questions should be posed to the witness in closed ended form that require a simple “yes” or “no” answer from the witness. Unlike direct examination in which the attorney takes a secondary position in the questioning and allows the witness to elaborate, during cross-examination the attorney is supposed to control the witness’s answers by asking previously prepared, closed ended questions, to which the attorney knows the answer. Lawyers are also trained to carefully plan the order and timing of the questions they pose to witnesses undergoing cross-examination. The strongest, most damaging questions, according to trial technique manuals, should come at the beginning and the end of the cross-examination (Haydock & Sonsteng, 1999; Kestler, 1982; Melton, 1988; Mauet, 2002; Wellman, 1997). In the beginning, a strong, attention getting question, such as, “Isn’t it true, Mr. Smith, that you have sued other companies in the past?” should be posed to the witness, to get the jury’s attention and taint their perception of the witness. It is hypothesized that asking a strong, intimidating question at the beginning of the cross-examination will establish the lawyer's dominance and possibly deter the witness from attempting to lie during cross-examination.

A qualitative analysis comparing the types of questions posed to witnesses during direct and cross-examination in trials indicates that attorneys seem to be adhering to the suggestions of trial technique manuals (Kebbell, Deprez, & Wagstaff, 2003). Attorneys asked a significantly higher proportion of questions during cross-examination. They also posed a higher proportion of closed ended and leading questions during cross-examination compared to direct examination.

Psychological research examining the effects of cross-examination techniques on perceptions of witness credibility and accuracy

Some psychological research has examined the effects of these two commonly recommended techniques on perceptions of witness accuracy and witness credibility. Most of the research on evaluating witness accuracy has been conducted in reference to eyewitness testimony. In this line of research, generally, the types of cross-examination techniques used by the attorneys are not systematically varied. Rather the researchers have manipulated variables that research suggests are indicative of identification accuracy and have examined whether cross-examination increased jurors' awareness and sensitivity to such factors. Without systematically varying the presence cross-examination or manipulating the strategies employed during cross-examination, we are unable to make any causal inferences about the effects of cross-examination on jurors' evaluations of eyewitnesses. However, a few research studies have manipulated some of the strategies employed during the cross-examination and provide us with some insight into the role of cross-examination in aiding jurors' accuracy judgments.

Berman, Narby and Cutler (1995) examined a commonly employed cross-examination technique in which the cross-examining attorney points out inconsistencies between multiple statements made by an eyewitness. Jurors viewed a videotape of a mock direct and cross-examination of an eyewitness who had remained consistent in his previous statements about the event in question or was inconsistent between previous out-of-court statements and statements during direct examination. During the cross-examination, the opposing attorney would demonstrate the inconsistency between the statements, and the witness would state that the current, in-court statement about the event was correct. When statements central to the event were revealed to be remembered inconsistently by the eyewitness, jurors were significantly less likely to find the defendant guilty. When the inconsistent statements were related to peripheral details of the event, the guilt ratings of the defendant were not affected. Although some research indicates witness consistency is not necessarily indicative of witness accuracy (Fisher & Cutler, 1995), this research indicates that jurors are using the information about witness inconsistency that they glean from the cross-examination in their evaluations of the witness.

Only a few eyewitness studies have tested whether cross-examination can help jurors discriminate between actual accurate and inaccurate eyewitness testimony. Wells, Lindsay and Ferguson (1979) cross-examined jurors who had accurately identified the culprit of a mock theft or had inaccurately identified a filler photograph. The cross-examination of the witness was conducted using either leading questions or non-leading questions. Leading questions cross-examination was operationalized as “the occasional assertion of a false premise, questions that yielded only short answers, and questions that tried to elicit contradictions (pp. 442-443)." The non-leading cross-examination did not include “false premises, were largely open-ended in nature, and did not actively seek contradictions (p. 443)." Jurors viewing the cross-examination were more likely to believe accurate witnesses when a leading cross-examination was employed (84%) than when witnesses were cross-examined with non-leading questions (76%). When inaccurate witnesses were cross-examined however, jurors were more likely to believe the inaccurate witnesses to be accurate when a non-leading questioning technique was used (86%) than when a leading questioning technique was used (73%). Jurors who were exposed to the leading cross-examination were also less confident that they could generally detect accuracy on the part of an eyewitness and more likely to believe that witnesses could be inaccurate in their identifications. Again, this research indicates that jurors are attentive to attacks employed during cross-examination and are using the information when evaluating the witnesses.

In response to criticisms concerning the ecological validity of using research assistants to conduct the cross-examination of eyewitness, Lindsay, Wells, and O'Connor (1989) recruited inexperienced attorneys and experienced attorneys to conduct direct and cross-examinations of accurate and inaccurate eyewitnesses. Jurors' ratings of defendant guilt were not significantly different between accurate and inaccurate eyewitnesses. There were no main effects for attorney experience or interactions between accuracy and experience. These findings indicate that the techniques used by experienced litigators may not be aiding jurors in discriminating between accurate and inaccurate eyewitnesses.

Other research has explored the effects of questioning techniques on perceptions of witness credibility. One study has examined the effectiveness of questioning techniques employed during cross-examination by manipulating whether the cross-examination questions posed to an expert for the defense in a personal injury case were leading questions or non-leading questions (Gibbs, Sigal & Adams, 1989). The level of hostility exhibited by the attorney conducting the cross-examination was also manipulated. Although, floor effects for guilt ratings made it impossible to examine the influence of the manipulated variables on verdicts, an interaction between lawyer hostility and type of questions was observed for ratings of the expert's effectiveness. Jurors perceived experts who faced a hostile, leading questioning technique or a nonhostile, nonleading technique to be less effective than experts who underwent a hostile, nonleading or a nonhostile, leading questioning technique. Although these findings indicate the type of questioning technique has an effect on jurors' perceptions of an expert's credibility, they do not provide us with information about jurors' evaluations of the veracity of a witness's testimony.

Other research has examined the effect of leading the cross-examination period with questions that imply that the credibility of the witness is questionable (Kassin, Williams & Saunders, 1990). Participants reading a rape trial were exposed to either a cross-examination of the victim or a psychological expert that began with an attack on their credibility (i.e., Isn't it true that you have accused men of rape before? Isn't it true that your work is poorly regarded by your colleagues?) or were not exposed to the attacking question. When the attacking questions were posed, the witness either provided an affirmative response or a denial to the question or the prosecuting attorney objected to the line of questioning and the question was withdrawn. This type of questioning reduced the expert witness's credibility whether the response was agreement, denial, or an objection. The same questioning techniques did not reduce the credibility of the rape victim's testimony. Although it is unknown why attacking questions were only effective in reducing the credibility of an expert witness, because the attacks on experts were effective even when the attack elicited a denial or objection response, it is possible that jurors were relying on heuristic cues when processing the expert's testimony and were not sensitive to the content of the expert's testimony. Research on evaluations of expert testimony has found that jurors rely on heuristic cues rather than centrally processing the content of an expert's testimony (Kovera, McAuliff, & Hebert, 1999). Jurors may be more confident in their ability to evaluate testimony by a lay witness such as a rape victim and may be more resistant to attacks that rely on heuristic cues. It is also possible that jurors' prior expectations for cross-examinations may have increased their resistance to credibility attacks on the rape victim. That is, they may expect that an attorney will always attack the credibility of a victim in a rape case and therefore do not consider it valid information to consider in their evaluations of the witness.

Psychological research on deception detection and interrogation methods

There is no psychological research that has examined whether cross-examination is effective in discriminating between liars and truth tellers. Psychological research examining the ability of laypeople to detect deception has asked college students to judge the veracity of videotaped statements on a variety of topics including the actors' attitudes, beliefs, or reports of events in which the actor participated. In general, the research indicates that laypeople perform rather poorly in making judgments of veracity. Although the overall accuracy rate is about 50%, laypeople seem to be better able to correctly identify truth tellers (accuracy rate of about 64%) than liars (accuracy rate of 44%, which is worse than chance detection; Vrij, 2000). Some research indicates that when the stakes are raised for the individuals providing the statements, high stakes liars were easier to detect than low stakes liars (Vrij, Harden, Terry, Edward & Bull, 2001).

When laypeople are asked to the judge veracity of an individual's statement, research indicates laypeople often consider whether the target showed signed of nervousness, such as gaze aversion and an increase in body movement (Vrij, 2000a).

Unfortunately, research on cues to deception indicates that gaze aversion is not related to veracity and liars are more likely to decrease hand and finger movement as opposed to increase body movement (Depaulo, Lindsay, Malone, Muhlenbruck, Charlton, & Cooper, 2003). Laypeople may also rely on a few verbal cues when making judgments of veracity. Laypeople believe that truth tellers will be more consistent and will provide more detail in their statements than individuals who are lying (Stromwall & Granhag, 2003). Research indicates that the level of detail provided may be related to veracity, but consistency may not be an indicator of deception (Granhag & Stromwall, 1999). Although this research asks participants to view testimonial type statements, those people providing the statements are not undergoing a typical cross-examination, and it is unknown how the techniques used during cross-examination would affect the behavior of individuals undergoing cross examination or perceivers' judgments of truth.

Recent innovative research in interrogation and deception detection has tested alternative forms of questioning techniques that may improve discrimination between liars and truth tellers (Hartwig, Granhag, Stromwall & Vrij, 2005). Traditionally, when a suspect is questioned about their involvement in a crime, the police begin the session by presenting all the damaging pieces of evidence they have gathered and ask the suspect to explain their story. Providing suspects with incriminating information at the outset of the interview gives suspects the opportunity to incorporate these damaging pieces of information into their accounts and provide an explanation for why they are not damaging. Hartwig and her colleagues hypothesized that allowing the suspect to provide free recall of the event first and subsequently presenting the suspect with damaging pieces of information may reveal a lack of consistency between the suspect's version of the events and known facts. Research on lying strategies indicates that liars attempt to keep their story as simple as possible and may be reluctant to provide details (Stromwell, Hartwig, & Granhag, 2006). Furthermore, liars seem to posses an illusion of transparency and are reluctant to provide details that are lies for fear of being detected (Kassin & Norwick, 2004) whereas truth-tellers will more readily provide detailed accounts of the event (Stromwell et al, 2006). Experts on deception detection have hypothesized that when asked to provide a free recall statement describing the event in question, liars' statements will be considerably shorter and include fewer details than truth-tellers and may be more useful in deception detection than being asked to respond with just a few words (Depaulo, et al, 2003). When damaging pieces of information are revealed at the end of the questioning period, omissions in the suspect's story or inconsistencies between his or her story and other facts may be made more apparent and may increase correct judgments of veracity. Research indicates that observers use inconsistencies as an indicator of deception when making judgments of veracity (Greuel, 1992).

To test this hypothesis, Hartwig and her colleagues asked participants to retrieve a specific videotape in a video store. When retrieving the videotape, all participants had to remove a briefcase that had been placed on top of the video. Participants in the deceptive condition were also instructed to remove a wallet inside the briefcase. Therefore, both liars and truth-tellers had touched the briefcase containing the wallet but only the liars had taken the wallet. The evidence against the defendant included an eyewitness to the event and fingerprint evidence taken from the briefcase. Both liars and truth-tellers who were questioned using the traditional strategy of introducing the evidence in the beginning of the interrogation incorporated damaging pieces of information into their explanation, and observers watching the videotapes of their statements were poor at distinguishing between the liars and truth tellers. When a late disclosure strategy was implemented, liars provided fewer details about the event during free recall compared to truth tellers. When presented with the damaging pieces of information at the end of the questioning period, liars were more likely to contradict the evidence. Furthermore, observers were significantly more likely to accurately identify false testimony in the late disclosure condition than when traditional methods of questioning were used. Observers in the late disclosure condition reported relying on verbal cues and inconsistencies in the testimony significantly more than observers who viewed the traditional method.

This research suggests that in the cross-examination setting, asking open-ended questions that allow witnesses to provide free recall responses followed by questions highlighting information that is contradictory to their story may be the best method to assess the veracity of witnesses' testimony. When a lawyer poses leading questions to witnesses, it allows untruthful witnesses to provide short non-detailed answers and denies the trier of fact useful verbal information to include in their decision-making processes. Research indicates that when individuals are repeatedly interrogated, liars tend to repeat verbatim their original story whereas truth tellers are more likely to add new, consistent information to their story (Granhag & Stromwall, 1999). It seems as if asking leading, closed ended questions would deprive the trier of fact of additional information helpful to their decision making process.

Research in the area of eyewitness testimony also suggests that when leading questions are posed to an eyewitness, the questions themselves may influence the memory and testimony of the eyewitness (Lassiter, Stone, & Weigold, 1987, Loftus, 1975). Therefore, a witness's testimony may not provide an accurate report of the witness's memory but a report that is distorted through questioning techniques. In contrast to the court's belief that cross-examination will elicit information that allows the trier of fact to make accurate judgments about truth, the typical recommendation to use closed-ended, leading questions during cross-examination may not be the most effective way to elicit information from witnesses that will allow jurors to make the most accurate judgments of witness truthfulness. Furthermore, starting the questioning period with damaging questions allows the witness to incorporate this information into the rest of the testimony and does not provide the triers of fact with the information that they need to discriminate between consistent and inconsistent stories. Although Wells et al. (1979) found that jurors were better at discriminating between accurate and inaccurate witnesses when leading questions were posed to the eyewitnesses, the researchers in the study compared a cross-examination containing leading questions to a cross-examination that solely allowed the eyewitness to provide open-ended responses but did not actively seek contradictions. It is possible that providing the jurors with open-ended accounts first and subsequently pointing out contradictions in the witness's testimony would be most effective for accurate judgments of truthfulness.

Although the techniques reviewed are seen through a variety of trial technique manuals, they have not been empirically tested to see if they are performing their purpose. Literature on general deception detection indicates that some of the techniques commonly employed during cross examination may not be the best methods to assist juries in detecting deception. Specifically, although lawyers may be tempted to control the witness through closed ended questions, deception detection research indicates that allowing the witness to elaborate on their answers will provide the jury with more information to make more accurate judgments of veracity. Additionally, research indicates that lawyers should refrain from presenting strong contradictory evidence in the beginning of the cross examination. Rather, they should present the information at the end of the questioning period to highlight the omissions and inconsistencies in their story. Empirical research is needed to test the effectiveness of traditional cross-examination methods in assisting jurors' discrimination between truthful and false testimony and to test the methods that deception detection literature suggests will improve laypersons' discrimination of truthful and deceptive witnesses.

Table 1. A summary of cross-examination techniques recommended by popular trial litigation manuals and derived from psychological research on deception detection in interrogations.

	Leading Questions	Open-Ended Questions	Early Disclosure	Late Disclosure
Trial Manuals				
Malton (1988)	X		X	
Kestier (1982)	X		X	
Haydock & Sonsteng (1997)	X		X	
Wellman (2004)	X		X	
Mauet (2006)	X		X	
Empirical Research				
Hartwig et al. (2005)		X		X

Psychological Research on Deception Detection: Does It Generalize to Cross-Examination?

Generally in deception detection paradigms, researchers vary whether the participant participates in a deceptive event and is instructed to lie or the participant does not participate in the deceptive event and is instructed to tell the truth. In either instance, participants are claiming innocence but only half of their claims truthful. Although this is a reasonable paradigm for deception detection in interrogations, the setting for the study of cross-examination's ability to help jurors detect deception occurs in a different context: a trial. In court, witnesses may be lying or telling the truth in support of the defendant's innocence; however, witnesses may also present truthful or false testimony that implicates the defendant, a situation that was not examined in Hartwig's study of interrogation techniques. People's a priori beliefs about the base-rates of lying and truth-telling may differ for witnesses testifying in support of the defendant's innocence and witnesses testifying in support of the defendant's guilt. It may be more difficult for jurors' to believe that a witness would lie to implicate a defendant than to believe that a witness would lie to protect a defendant, affecting their accuracy in judgments of truthfulness. It is possible that the research based cross-examinations would aid jurors in distinguishing between truthful and false testimony in both conditions, but empirical research is needed to assess this hypothesis.

I conducted a three-phase study to empirically examine the court's assumption that cross-examination as it currently is taught is an effective means of detecting deception in a witness's testimony. I tested the questioning trial technique strategies that attorneys use to conduct a cross-examination against alternative forms that are consistent with recommendations derived from the deception detection literature. During the first phase, I paired participant witnesses with a confederate to complete a series of tasks together. During one of the tasks, I manipulated whether the witness participants viewed the confederate stealing a wallet. In the second phase of the study, witness participants were asked to testify about the event. In both the innocent and guilty defendant conditions, I manipulated whether the witness was motivated to lie or to tell the truth.

During cross-examination, a mock attorney questioned witnesses using either traditional methods in which damaging evidence was introduced at the beginning of the cross-examination or methods based on deception detection research in which questions concerning the damaging evidence were asked at the end of the cross-examination. In the interrogation setting, the SUE technique includes gathering open-ended statements prior to close-ended questions concerning damaging evidence (Harwig et al, 2005). In the current research I did not include open-ended questions during the cross-examination portion of the witnesses' testimony. In the trial setting, witnesses provide open-ended statements during direct-examination, and therefore, open-ended responses during the cross-examination would be redundant .In the third phase of the study, mock jurors viewed one of the trials, rendered a verdict, and assessed the veracity of each the witness's testimony.

CHAPTER TWO: METHOD

Design

The present study had a 2 (Evidence Implication: Exculpation vs. Inculpation) X 2 (Witness Veracity: Truthful vs. Deceptive) X 3 (Cross-Exam Technique: None vs. Traditional vs. Research-Based) factorial design.

Phase I: Witnessing events surrounding an alleged theft

Participants

One hundred and twenty-seven undergraduate psychology students participated in the first phase of the experiment. Twenty participants were unable to correctly recall whether the defendant stole the wallet during the scavenger hunt and therefore were not able to serve as witnesses about the event. One participant did not feel comfortable testifying about the event and did not serve as a witness. Of the remaining 106 participants (22 males and 84 females, mean age, 19.9 years, SD = 2.9) who served as witnesses, 10% identified their ethnicity as White, 17% as Black, 56% as Hispanic, 7% as Asian, and 9% as "Other." Although some criticize the use of student participants in psycho-legal research, there is no research to indicate that students differ from the general population in the strategies that they employ when lying, lessening concerns about whether the findings from this student sample would generalize to a sample that is more representative of the general population.

Procedure

Witnesses participated in an adapted version of the Hartwig et al (2005) paradigm. Witnesses signed up to participate in a study in which they would participate in a scavenger hunt. When participants reported to the study, an experimenter told them that they would be participating in an experiment examining the interpersonal strategies that people use when working in pairs. Although the experimenter informed them that they would be paired with another participant to solve a scavenger hunt, the other participant was a research confederate who was randomly assigned to steal or not steal a wallet during the scavenger hunt. To keep the witness participants separate from the research confederate until the scavenger hunt, the experimenter told the participants that they were not to interact with their partner before the scavenger hunt, and therefore, their partner was scheduled to arrive at a different room. The experimenter left the room and a few minutes later returned to inform the participant that their partner had arrived and was waiting in the room in which the scavenger hunt would take place. The experimenter then showed the participant into the scavenger hunt room where the confederate was seated. The scavenger hunt was conducted in a research laboratory containing several desks, shelves, and a filing cabinet. The items the participants needed to find in the scavenger hunt were all hidden in the room.

The participants and the research confederate were informed the study was examining how people work together to solve problems and complete tasks, and they would be solving a scavenger hunt together. Participants learned that they would be provided with separate instructional sheets to guide them through the tasks in the scavenger hunt. The separate instructional sheets were labeled at the top as “Participant 1” and “Participant 2”. The witness participants always received the sheet labeled “Participant 1” and the research confederate always received the sheet labeled “Participant 2.” The participants were informed that each participant in the pair would be responsible for solving different clues, finding different items and completing different tasks in relation to specific items. For example, the witness participant sheet instructed the participants to answer questions about specific items that they were responsible for finding and to keep a penny that they found to show to the researcher after the scavenger hunt. The research confederate's sheet had the clue that made him responsible for finding the wallet in the scavenger hunt. The wallet was inside a bag on top of a filing cabinet. Once the confederate found the wallet, he opened it to find a clue intended for the participant witness to read. To ensure that the participants were standing next to the confederate while he was holding the wallet the confederate called the witness participants over to read the clue. After the witness participants read the clue on the wallet, the confederate either placed the wallet on the cabinet or placed the wallet in his pocket. If the witness participants questioned the confederate about why he was pocketing the wallet, the confederate would reply that his sheet instructed him to keep the wallet.

After ten minutes, the researcher returned and separated the pair by showing the witness participants into an adjoining room. At that time, the experimenter told the witness participants that the true purpose of the study was to examine witness testimony in court and that they would be testifying about the scavenger hunt in which they had participated. The experimenter then probed for participants' memory concerning the location of the wallet. To continue with the testimony portion of the study, the participants needed to correctly remember whether the confederate pocketed the wallet or set the wallet on the cabinet. If the participants correctly remembered the placement of the wallet, the experimenter informed them that she had discovered the wallet was missing and that their partner had been charged with theft.

Phase II: Witness testimony and cross-examination

In the next phase of the study, participant witnesses provided testimony about the actions of the confederate during the scavenger hunt. The experimenter instructed the witnesses either to tell the truth about whether the confederate took the wallet (e.g., exculpate an innocent confederate or implicate a guilty confederate) or instructed them to lie (e.g., to implicate an innocent confederate or to exculpate a guilty confederate). The experimenter informed the witnesses that they were to testify in the trial of their partner and convince the court that either their partner stole the wallet or did not steal the wallet, depending on the condition. The experimenter informed the witness participants that jurors would later watch their testimony, and if they convinced three of the four jurors who would watch their testimony of the truth of their testimony, they would be entered into a raffle to win one of three one hundred dollar prizes.

Two research assistants acted as the attorneys during the testimony portion of the study. One attorney always conducted the direct examination and one attorney always conducted the cross-examination of the witnesses. Both the direct examination and the cross-examination attorneys were blind to the guilt of the defendant and whether the witnesses were instructed to lie or tell the truth during their testimony. The experimenter introduced the witnesses to the direct examining attorney as either the prosecuting attorney (if they were to testify that the defendant stole the wallet) or as the defense attorney (if they were to testify that the defendant did not steal the wallet). The direct examining attorney spent approximately ten minutes preparing the participants for the line of questioning that would occur during the direct examination portion of the trial. After prepping the witnesses, the attorney brought the witnesses to the mock courtroom where they were seated on the witness stand, next to the judge's bench. The witnesses were sworn in and videotaped while they provided their testimony. First the witnesses underwent direct examination. The witnesses were then cross-examined by the opposing counsel with research based cross-examination techniques, with traditional cross-examination techniques, or were not cross-examined. One camera was trained so that there was equal focus on both the attorney and the witnesses. Another camera was trained solely on the witnesses for later coding of witness behavior.

Cross-Examination Manipulation

During the cross-examination (in the two conditions containing cross-examination), the attorney contradicted the witness with information that a security camera in the lab showed both the witness and the defendant standing next to the bag with the wallet in it. Witnesses in both the guilty and innocent conditions stood next to the defendant while he held the wallet. Based on the earlier research (Hartwig et al., 2005), it was presumed that this incriminating information would only be difficult for the deceptive witnesses to explain. When the defense attorney was cross-examining the witness, this question implied that the witnesses were accusing the defendant of the theft when in fact the witnesses had perpetrated the theft. When the prosecuting attorney was conducting the cross-examination, this question implied that the witness was a co-conspirator and was trying to conceal the involvement of both the witness and the defendant in the theft. In either condition, the damaging information suggested that the witnesses may have something to gain (e.g., his or her freedom) by either accusing the defendant or by saying that someone else must have taken the wallet. This damaging information appeared in one of two places in the cross-examination. In the ***traditional***

cross-examination condition, the attorney opened the cross-examination with the damaging information. In the ***research based cross-examination condition***, the attorney waited until the end of the line of questioning to pose the contradictory evidence. The opposing counsel did not cross-examine the remaining third of the witnesses; the video continued to the direct and cross-examination of the next witness in the trial video.

Dependent Measures

Witness ratings of testimony experience. Witnesses rated seven statements regarding their nervousness and discomfort during the direct examination portion of their testimony on nine-point Likert-type scales, with higher numbers indicating higher levels of agreement. Principal factor analysis with varimax rotation yielded one meaningful factor. All seven items had loadings greater than .5 and were recoded when necessary so that higher ratings indicated greater feelings of discomfort. The following items were averaged for each participant: a) I felt uncomfortable during the direct portion of my testimony (i.e., when your attorney was asking you questions about the event); b) I felt nervous during the direct portion of my testimony; c) I found the attorney's questions during the direct examination to be difficult to answer; d) I found the attorney's questions during the direct examination to be easy to answer; e) I felt comfortable during the direct examination; f) I felt like the attorney during direct examination was trying to trick me; g) During the direct examination, I was worried about whether people watching my testimony would believe me. Reliability for the scale was sufficient ($\alpha = .78$).

Witnesses who underwent cross-examination rated six statements regarding their nervousness and discomfort during the cross-examination portion of their testimony on nine-point Likert-type scales, with higher numbers indicating higher levels of agreement.

Principal factor analysis with varimax rotation yielded one meaningful factor. All six items had loadings greater than .5 and were recoded when necessary so that higher ratings indicated greater feelings of discomfort. The following items were averaged for each participant: a) I felt uncomfortable during the cross-examination (i.e., when the opposing attorney was questioning you about the event); b) I felt nervous during the cross-examination; c) I found the attorney's questions during the cross-examination to be difficult to answer; d) I felt comfortable during the cross-examination; e) I felt like the attorney during cross-examination was trying to trick me; f) During the cross-examination, I was worried about whether people watching my testimony would believe me. Reliability for the scale was sufficient ($\alpha = .86$).

Witnesses' reports of their strategies during the direct and cross-examination. Witnesses provided open-ended statements reporting the strategies they used to make the direct and cross-examination strategies as credible as possible. Participants provided open ended responses to the following questions: a) What did you do to make your testimony as credible as possible; b) What did you do to make your body language (including facial expressions) as credible as possible? One coder blind to condition coded all responses and a second coder blind to condition coded a random selection of 20% of the responses. The coders categorized witnesses' responses into the following categories: "Keep it real" (including: just tell the truth, tell everything that happened, provide as much detail as possible, etc), "Keep it simple", "Appear serious" (including: seem firm, keep a straight face), "Mention the wallet" (for the inculpating conditions, specifically state that the defendant took the wallet and in the exculpating conditions, specifically state that the defendant did not take the wallet), "Appear confident" (including: seem sure and make eye contact), “Stay calm”, and “Seem believable”. If the statement could not be categorized, it was coded as “Other”. Concordance rates on the number of responses coded by both coders was calculated using the Formula, $C = 2(C_{1,2})/(C_1 + C_2)$, where $C_{1,2}$ equals the number of identical categories by both coders and C_1 and C_2 equals the total number of categories assigned by the first and second coders, respectively. The concordance rate between the two coders was .83.

Witnesses indicated whether they had a strategy for the direct examination and to explain. One coder blind to condition coded all responses and a second coder blind to condition coded a random selection of 20% of the responses. Coders categorized witnesses’ explanations into the following categories: “Just tell the truth”, “Keep it simple”, “Stay calm”, “Include a lot of detail”, “Just answer the question”, “Appear serious”, “Mention the Wallet”, “Appear confident”, “Maintain eye contact”, “Keep still”, and “Didn’t need one.”. Witnesses who underwent cross-examination were also asked to indicate whether they had a strategy for the cross-examination and to explain. Coders categorized witnesses’ explanations into the following Categories: “Just tell the truth”, “Keep it simple”, “Stay calm”, “Include a lot of detail”, “Just answer the question”, “Appear serious”, “Mention the Wallet”, “Appear confident”, “Maintain eye contact”, “Keep still”, and “Didn’t need one”, “Didn’t know what to expect”, “No time to prepare” and “Go with the flow”. If the statement could not be categorized, it was coded as “Other”. Due to the small number of responses for both of these open-ended question, for each question I collapsed across categories that referred to verbal content to create a “verbal strategy” category and across categories that referred to manipulation of body language as to create a “body language” category.

Witnesses provided agreement ratings with statements regarding the extent to which they planned the verbal content and body language during the direct examination and cross-examination portion of their testimony on nine-point Likert-type scales, with higher numbers indicating higher levels of agreement. The following statements were rated: a) I planned ahead of time what I wanted to say during the direct examination portion of my testimony (i.e., when your own attorney questioned you about the event); b) I planned ahead of time my body language (including facial expressions) during the direct portion of my testimony (i.e., when you own attorney questioned you about the event). c) I planned ahead of time what I wanted to say during the cross-examination portion of my testimony (i.e., when the opposing attorney questioned you about the event); d) I planned ahead of time my body language (including facial expressions) during the cross-examination (i.e., when the opposing attorney questioned you about the event).

Witness Self-Reported Motivation and Confidence

Witnesses rated three statements regarding their motivation to appear credible on nine-point Likert-type scales, with higher numbers indicating higher levels of agreement. Witnesses rated the following statements: a) I wanted to be a credible witness; b) I didn't care whether the attorneys believed me; c) I was motivated to convince the attorneys that my story was true. Witnesses also rated their confidence in the credibility of their testimony on a nine-point Likert-type scale, with higher numbers indicating higher levels of agreement by rating the statement, "It will be difficult for a person watching a videotape of my testimony to determine whether I was lying or telling the truth."

Manipulation checks. Witnesses indicated on nine point Likert-type scales their agreement to the following statements: a) My testimony today was truthful; b) I lied during my testimony about whether I saw my partner steal the wallet. Finally, the witnesses indicated whether they actually witnessed the defendant stealing the wallet during the scavenger hunt. Witnesses checked a "yes" or "no" box in response to the following statement: "Did you actually witness your partner steal the wallet during the scavenger hunt (despite what you may or may not have said during your testimony)."

Attorney ratings of the witness. The research assistants acting as the direct and cross-examining attorney provided ratings for each witness's testimony on nine point Likert-type scales, with higher numbers indicating higher levels of agreement. The attorney rated the following statements: a) This witness was truthful during their testimony; b) This witness lied during their testimony; c) This witness was nervous during their testimony; d) This witness was confident during testimony. See Appendix A for the post-testimony witness questionnaire.

Observer ratings of witness behavior. Two research assistants blind to condition coded the videotapes of the witnesses' testimonies for witness behavior and testimony content. One of the witnesses' testimonies could not be coded due to technical difficulties with the video equipment. Of the remaining 105 testimonies, both raters coded a random selection of 20% of the testimonies . One coder blind to condition coded 95 of the testimonies, but could not complete the coding of the remaining ten testimonies. The second coder who had previously coded 20% of the responses for reliability coded the remaining ten testimonies.

Coders recorded the frequency of "ahs" or "mm's", gaze aversions, smiles, laughs, self-manipulations (e.g. adjustment of clothes, scratching, flipping hair), head movements, and trunk movements. The frequency of each of the behaviors was coded for the direct examination and the cross-examination separately. Across items, the average intraclass correlation indicated reasonable interrater reliability (.77). Coders also recorded the level of detail included during the witness's recount of the event by indicating whether the witness mentioned each of ten items that were included in the scavenger hunt. The coders also recorded whether the witness recounted during the direct examination whether the defendant took the wallet or set the wallet back down, and if so, if the witness stated the specific location of the wallet (e.g., in the defendant's left front pocket).

If the witnesses were cross-examined, the coders also categorized witnesses' responses to key questions regarding the location of the witness and the location of the defendant during the alleged theft of the wallet. Coders also categorized witnesses' responses to the damaging cross-examination question regarding the video camera surveillance footage. Specifically, coders categorized witness's responses to the question, "Was the defendant standing next to the bag with the wallet?" as: a) yes; b yes, but (i.e., the witness provided an excuse for why the defendant was there; c) Yes, qualification (the witness provided an admission, but qualified by saying the defendant was near the bag, etc); d) no. Coders categorized witness's responses to the question, "Were you standing next to the bag with the wallet on it?" as: a) yes; b yes, but (i.e., the witness provided an excuse for why they were next to the bag); c) Yes, qualification (the witness admitted, but qualified he was near or behind the defendant, etc); d) no. Finally, witnesses' responses to the question, "What would you say if I told you there was surveillance camera footage that shows you and the defendant standing next to the bag with the wallet" were coded as: a) yes, you are right; b) Yes but; c) The defendant was, I wasn't; d) the defendant was, I was behind, near, etc; e) No, that's not right. The overall concordance rate between the two coders was .89.

Results

Table Two provides the correlation matrix for the main dependent variables from all three phases of this study.

Manipulation checks

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) Analysis of Variance (ANOVA) was performed with the witnesses' agreements to the Statement, "My testimony today was truthful." as the dependent variable. There was significant main effect of witness veracity, $F(1, 104) = 12.18$, $p < .01$, partial $\eta^2 = .12$. Witnesses who were instructed to provide truthful testimony provided higher ratings of agreement (M = 8.89) than did witnesses who were instructed to provide false testimony (M = 4.56). There were no other significant main effects or interactions. A 2 (Defendant Guilt) X 2 (Witness Truthfulness) X 3 (Cross-Examination Type) ANOVA was also conducted with the witnesses' ratings of agreement with the statement, "I lied during my testimony about whether I saw my partner steal the wallet" as the dependent variable. There was a significant main effect for witness veracity, $F(1, 104) = 241.76$, $p < .01$, partial $\eta^2 = .72$. Witnesses who were instructed to provide fabricated testimony provided higher ratings of agreement (M = 7.41) than witnesses who were instructed to provide truthful testimony (M = 1.22).

Table 2: Correlation matrix containing main dependent variables across study phases

	guilt	truth	consistent	"ah"	gaze	smile	laugh	head	trunk	plan direct	plan cross	discomfort
Juror probability of guilt	1	-.18	-.23*	.18	.19	.07	.15	.07	.04	.08	-.03	.10
Juror rating of witness truthfulness	-.08	1	.08	.03	-.13	-.02	.12	-.02	.08	-.14	-.07	-.15
Juror rating of witness consistency	-.23*	.08	1	.09	-.29*	-.16	-.21	-.17	-.13	-.11	-.08	-.16
Frequency of witness "ah's"	-.01	.03	.09	1	.14	.14	.07	.33*	-.04	-.02	-.01	.05
Frequency of witness gaze aversion	.19	-.13	-.29*	.14	1	.40*	.33*	.40*	.35	.02	-.07	-.06
Frequency of witness smiles	.09	-.02	-.16	.14	.40*	1	.53*	.24*	.21	-.13	.04	-.07
Frequency of witness laughs	.16	.12	-.21	.07	.33*	.53*	1	.08	.09	.09	.18	.14

Frequency of witness head movements	.07	-.02	-.17	.33*	.40*	.24*	.08	1	.07	.05	.02	-.06
Frequency of witness trunk movement	.04	.08	-.13	-.04	.35*	.21	.09	.07	1	.04	.05	-.14
Witness reports of planning for direct	.08	-.14	-.11	-.02	.02	-.13	.09	.07	.05	1	.65*	.30*
Witness reports of planning for cross	-.03	-.07	-.08	-.01	-.07	.04	.18	.02	.05	.65*	1	.17
Witness reports of discomfort	.10	-.15	-.16	.05	-.06	.-.07	.14	-.06	-.14	.30*	.17	1

Witnesses also indicated whether they actually witnessed the defendant taking the wallet, despite what they may have said during their testimony. Ninety-four percent of the witnesses who were in the innocent condition correctly reported that they did not witness the defendant take the wallet. Eighty-five percent of witnesses in the guilty condition correctly reported that they witnessed the defendant take the wallet. Upon probing the participants after completing the questionnaire, it may be that witnesses were confused by this question and did not know whether the question was referring to the actual event or to their instructed testimony. As witnesses who testified were required to be able to correctly state (without prompting) where the defendant placed the wallet (i.e., back on the filing cabinet in the innocent conditions and in the defendant's pocket in the guilty conditions) all participants were kept in the analyses.

Witness Self-reported Motivation and Confidence

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) MANOVA was conducted with witnesses' ratings of their agreement with statements about their motivation to appear credible. Three statements were included in the analysis: a) I wanted to be a credible witness; b) I didn't care whether the attorneys believed me; c) I was motivated to convince the attorneys that my story was true. Statements were recoded when necessary so that higher ratings indicated greater motivation to appear credible. There were no significant main effects or interactions. On average, participants reported high motivation to appear credible on the stand. An average of witnesses' ratings of agreement on the credibility items was calculated, and across all participants the mean score was 7.59 (SD = 1.44).

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA was conducted with participants' ratings of agreement with the statement, "It will be difficult for someone watching my testimony to tell whether I was lying or telling the truth" as the dependent variable. There was a significant main effect for witness veracity, $F(1, 105) = 11.90$, $p < .01$, partial $\eta^2 = .11$. Witnesses who provided deceptive testimony were more likely to believe that others would have difficulty evaluating the truthfulness of their testimony (M = 5.22) than witnesses who provided truthful testimony (M = 3.63). There were no other significant main effects or interactions.

Witness Self-reports of Preparation

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) MANOVA was conducted with witnesses' ratings of their agreement with statements concerning the extent to which they planned for the direct examination as the dependent variable. Ratings of the following two items were included in the analyses: a) I planned ahead of time what I wanted to say during the direct examination portion of my testimony; b) I planned ahead of time my body language (including facial expressions) during the direct examination portion of my testimony. There was a significant main effect of witness veracity, $F(2, 105) = 4.01$, $p = .02$, partial $\eta^2 = .08$. Follow-up univariate analyses revealed that witnesses who were instructed to provide fabricated testimony were more likely to report planning ahead for the verbal content of their testimony ($M = 6.31$) than witnesses who were instructed to tell the truth ($M = 4.87$), $F(1, 105) = 55.01$, $p<.01$, partial $\eta^2 = .08$. No other significant main effects or interactions were observed.

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) MANOVA was conducted with witnesses' ratings of their agreement with statements concerning the extent to which they planned for the cross-examination as the dependent variable. Ratings for the following two statements were included in the analysis: a) I planned ahead of time what I wanted to say during the cross-examination portion of my testimony; b) I planned ahead of time my body language (including facial expressions) during the cross-examination portion of my testimony. No significant main effects or interactions were observed.

To examine differences in witnesses' open ended statements concerning their strategies to appear credible, 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) logistic regressions were conducted with each of the coded categories of witnesses' statements regarding their strategies to appear credible as the dependent variables. A main effect of witness veracity on the "Keep it real" category was observed, B = 2.42, S.E. = .84, Wald's χ^2 (1, N = 106) = 8.21, p < .01, exp(B) = .089. Witnesses who were instructed to provide truthful testimony were more likely to state that they simply needed to tell the truth (.64) than witnesses who were instructed to provided fabricated testimony (.31). There was a significant main effect of witness veracity on the category "Appear serious", B = 2.16, S.E. = .92, Wald's χ^2 (1, N = 106) = 5.56, p =.02, exp(B) = 8.66. Witnesses who were instructed to provide false testimony were more likely to state they attempted to appear serious (.46) than were witnesses who were instructed to provide truthful testimony (.19). There was a significant main effect of witness veracity on the category, "mention of the wallet", B = 3.56, S.E. = .1.83, Wald's χ^2 (1, N = 106) = 3.79, p =.05, exp(B) = 35.12. Witnesses who were instructed to provide fabricated testimony were more likely to mention placement of the wallet (.23) than witnesses who were instructed to provide truthful testimony (.07). There were no significant differences between truth tellers and liars in the proportion of mention for the "Keep it simple" (.04 vs. 08), "Stay calm" (.59 vs. .46), "Appear confident" (.44 vs. .35) and "Seem believable" (.22 vs. .17) categories.

I conducted two separate 2 (Evidence Implication) X 2 (Witness veracity) X 3 (Cross-Examination Type) logistic regressions with witnesses' dichotomous responses to whether they had a strategy for the direct examination or for the cross-examination as the dependent variables. There were no significant main effects or interactions. A series of 2 (Evidence Implication) X 2 (Witness veracity) X 3 (Cross-Examination Type) logistic regressions were also conducted with each of the coded categories for witnesses' open ended statements that provided an explanation for why they did or did not have a strategy for the direct examination and the cross-examination. No significant main effects or interactions were observed.

Witness Self reports of Discomfort

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA was conducted with witnesses' scores on the direct examination discomfort factor as the dependent variable. A significant main effect of witness veracity was observed, $F(1, 105) = 8.35$, $p < .01$, partial $\eta^2 = .06$. Witnesses who lied during the testimony had higher discomfort scores ($M = 3.69$) than witnesses who provided truthful testimony ($M = 2.84$). No other significant main effects or interactions were observed.

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA was conducted with witnesses' scores on the cross-examination discomfort factor as the dependent variable. A significant witness veracity by cross-examination type interaction was observed, $F(1, 69) = 6.24$, $p = .015$, partial $\eta^2 = .11$. Follow up simple effect tests revealed significant differences between cross-examination conditions for witnesses who lied on the stand, $F(1, 69) = 7.26$, $p < .01$. Witnesses who lied during their testimony and were cross-examined using research-based techniques had higher discomfort scores ($M = 5.65$) than witnesses who lied during their testimony and were cross-examined using traditional techniques ($M = 3.92$). When witnesses were instructed to be truthful, there were no significant differences in discomfort scores for witnesses who were cross-examined using traditional techniques ($M = 3.98$) and those cross-examined using research-based techniques ($M = 3.32$).

Attorney Ratings of Witness Truthfulness and Confidence

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA was conducted with the direct examiner's ratings of the degree to which the witness lied during their testimony as the dependent variable. A main effect of witness veracity was observed, $F(1, 105) = 16.08$, $p = .03$, partial $\eta^2 = .15$. Witnesses who were instructed to lie on the stand were rated as more deceptive during their testimony ($M = 4.50$) than witnesses who were instructed to provide truthful testimony ($M = 2.39$). There was also an interaction between witness veracity and evidence implication, $F(1, 105) = 5.09$, $p = .03$, partial $\eta^2 = .05$. Follow-up simple effects tests revealed that there was a significant difference in ratings of deceptiveness when witness testimony inculpated the defendant, $F(1, 94) = 20.19$, $p <. 01$. Specifically, witnesses who lied that the defendant was guilty were rated as more deceptive ($M = 5.98$) than witnesses who provided truthful testimony of the defendant's guilt ($M = 3.02$). For exculpation testimony conditions, there was not a significant different in ratings of deceptiveness for witnesses who provided truthful testimony (*M* = 2.07) and witnesses who provided fabricated testimony (*M* = 2.70). No other significant main effects or interactions were observed.

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) MANOVA was conducted with the direct examining attorney's ratings of agreement with statements concerning the nervousness of the witness as the dependent variable. Two statements were included in the analysis: a) This witness was nervous during their testimony; b) This was confident during their testimony. Statements were recoded when necessary so that higher ratings indicated greater perceptions of nervousness. A main effect of witness veracity was observed, $F(2,105) = 3.52$, $p = .03$, partial $\eta^2 = .07$. Follow-up univariate analyses revealed marginal significance on ratings of witness confidence (recoded), $F(1,105) = 3.67$, $p = .059$, partial $\eta^2 = .04$. The direct examining attorney provided higher ratings of nervousness for witnesses who provided fabricated testimony (*M* = 4.52) than for witnesses who provided truthful testimony (*M* = 3.48). No other significant main effects or interactions were observed.

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA was conducted with the cross-examiner's ratings of agreement with the statements concerning witness deceptiveness as the dependent variable. A main effect of Evidence implication was observed, $F(1,69) = 10.37$, $p < .01$, partial $\eta^2 = .14$. The cross-examiner provided significantly higher ratings of deceptiveness when the witness's testimony was exculpating (*M* = 4.22) than when the witness's testimony was inculpating (*M* = 2.47). No other significant main effects of interactions were observed.

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) MANOVA was conducted with the cross-examining attorney's ratings of agreement with statements concerning the nervousness of the witness as the dependent variable. Two statements were included in the analysis: a) This witness was nervous during their testimony; b) This was confident during their testimony. Statements were recoded when necessary so that higher ratings indicated greater perceptions of nervousness. A main effect of evidence implication was observed, $F(2,69) = 5.05$, $p < .01$, partial $\eta^2 = .14$. Follow-up univariate analyses indicated a significant effect for ratings of witness confidence (recoded). The cross-examining attorney provided higher ratings of witness nervousness when the witness provided exculpating testimony ($M = 3.39$) than when the witness provided inculpating testimony ($M = 2.55$).

The main effect of evidence implication on the cross-examining attorney's ratings of witness nervousness was qualified by a three-way interaction of evidence implication, witness truthfulness, and cross-examination, $F(2,69) = 5.60$, $p < .01$, partial $\eta^2 = .09$. Univariate tests revealed the interaction was only significant for the item concerning the cross-examiner's ratings of the witness's confidence (recoded), $F(1,69) = 6.42$, $p = .02$. For this interaction, simple effects tests revealed a significant effect of cross-examination within the conditions in which witnesses provided deceptive, exculpating testimony. Among witness who provided deceptive, exculpating testimony, attorneys rated witnesses who were cross-examined using research-based techniques as more nervous ($M = 4.33$) than witnesses who were cross-examined using traditional techniques ($M = 2.55$), $F(1, 62) = 7.47$, $p < .01$. There were no other significant effects of cross-examination within the other combinations of evidence implication and witness veracity.

Observer ratings of witness behavior

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) MANOVA was conducted with observer codes of witness behavior during the direct examination and the cross-examination as the dependent variables. The frequencies of the following behaviors were included in the analysis: a) “ah’s” or or “mm’s”; b) gaze aversions; c) self-manipulation; d) head movements; e) trunk movements; f) smiles; g) laughs. The multivariate test revealed a main effect of witness veracity, $F(2,105) = 2.20$, $p = .048$, partial $\eta^2 = .21$. Follow-up univariate tests were significant only for the frequency of laughs, $F(1, 105) = 4.60$, $p = .04$, partial $\eta^2 = .06$. Witnesses who were telling the truth laughed more frequently during the cross-examination ($M = .39$) than witnesses who were lying ($M = .08$).

The frequency of witnesses’ mentions during direct testimony of each of the ten items included in the scavenger hunt were added together to create a score that represented their level of detail during direct examination, and a 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA was conducted with witnesses’ detail scores as the dependent variable. No significant main effects or interactions were observed. A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) logistic regression was also conducted with mention of the wallet during direct testimony as the dependent variable. No significant main effects or interactions were observed. A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) logistic regression was conducted with mention of wallet placement during direct testimony as the dependent variable. No significant interactions or main effects were observed.

A series of A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) logistic regressions were conducted with the observer coding of witnesses' responses to key cross-examination questions as the dependent variables. For the question, "Were you standing next to the bag with the wallet on it?", there was a main effect of cross-examination type for "yes" answers, B = -2.77, S.E. = 1.27, Wald's χ^2 (1, N = 105) = 4.73, p = 03, exp(B) = .06. Witnesses who were cross-examined using traditional techniques were more likely to answer yes to this question than witnesses who were cross-examined using research-based techniques. In response to the questions, "What would you say if I told you that we have video surveillance footage that shows you and the defendant standing next to the bag with the wallet on it?", a cross-examination type by witness veracity interaction was observed for "yes, but" answers, B = -4.18, S.E. = 1.84, Wald's χ^2 (1, N = 105) = 5.18, p = 03, exp(B) = .02. Deceptive witnesses who were cross-examined using traditional techniques provided an explanation in response to the damaging question (.36) more often than deceptive witnesses who were cross-examined using research-based techniques (.15). Cross-examination did not affect the likelihood of providing excuses for witnesses who provided truthful testimony (.20 and .25 for research-hased and standard cross-examination, respectively).

Discussion

Influence of witness veracity

Witness Motivation and Confidence. Although witnesses across conditions reported high motivation to appear credible during their testimony, lying and truthful witnesses differed in their reported confidence in the believability of their testimony. When rating the difficulty of judging the believability of their testimony, truthful witnesses rated their testimony as easier to judge than did deceptive witnesses. Although not synonymous, truthful witnesses' belief that their testimony would be easier to judge (as truthful) than deceptive witnesses is similar to findings that within the interrogation setting, innocent suspects are more likely to express confidence that they will be judged as truthful (Hartwig et al, 2007, Stromwall et al, 2006). Innocent suspects are also more likely to agree to an interrogation (Kassin & Norwick, 2004) and to waive an offer of a lineup (Holland, Kassin, & Wells, 2005) because they believe in the power of their innocence.

Research on deception detection in interrogations has cited the social psychological concepts of the *illusion of transparency* (Gilovich, Savitsky, & Medvec, 1998) and the *belief in a just world* (Lerner, 1980) to assist in explaining the consistent finding that truth tellers possess a strong belief in the power of their innocence (Hartwig et al, 2007). Social psychological research has found that individuals tend to believe that their internal states are more apparent to observers than is really the case (Gilovich, et al, 1998) and to believe that people are rewarded for their good behavior (Lerner, 1980). These beliefs may contribute to innocent suspects' primary reliance on their innocence during interrogations. In the current study, it seems as if truthful witnesses possessed a strong belief in the power of truth and that the truthfulness of their testimony would be apparent to observers.

Witness Strategies to Appear Credible. A belief in the *illusion of transparency* may also have influenced truthful witnesses' reported strategies for attempting to appear credible during their testimony. The only strategy truthful witnesses reported more often than deceptive witnesses as a strategy to appear credible was to "Keep it real" or just tell the truth. Research on guilty and innocent suspects' self-reported strategies during interrogations has also found that innocent suspects primarily rely on the strategy of "just telling the truth" (Hartwig, 2007, Stromwall, 2006). In the current study, deceptive witnesses were more likely to report that they planned to specifically state they saw the defendant take the wallet (i.e., inculpate) or specifically state they did not see the defendant take the wallet (i.e., exculpate) to appear credible during their testimony. Taken together it appears as if truthful witnesses simply believed that they needed to recount the event as it happened and did not believe that they needed to specifically state the guilt or innocence of the defendant. Deceptive witnesses, on the other hand, were more focused on the task of either exculpating or inculpating the defendant. Deceptive witnesses were also more likely to state that they attempted to appear serious during their testimony.

Research on differences between lying and truthful suspects' experiences during interrogations indicates that liars are more likely than truthful suspects to be deliberate during interrogations and attempt to control their demeanor and the content of their statements (Depaulo, & Kirkendol, 1989; DePaulo et al 2003). Deceptive witnesses' increased reports of strategizing to specifically mention the placement of the wallet and of attempting to appear serious is evidence that on the stand deceptive witnesses are also more sensitive to the appearance of credibility and are employing specific strategies to assist in their attempts to deceive. There were no differences between deceptive and truthful witnesses in the frequency with which they mentioned trying to appear confident, keep their story simple, remain calm or appear believable.

Witnesses' Reported Strategies for the Direct and Cross-examination. Although there were no differences between deceptive and truthful witnesses' dichotomous reports of having a specific strategy for the direct examination, deceptive witnesses were more likely to agree with the statement that they planned the verbal content of their testimony before taking the stand than were truthful witnesses. Deceptive witnesses' reports of planning what to say during the direct examination is further evidence that similar to deceptive witnesses undergoing interrogations, deceptive witnesses preparing to testify in court are unsure how they will be perceived by observers and devise strategies to increase their credibility. There were no differences between truthful and deceptive witnesses in their dichotomous reports of having a specific strategy for the cross-examination or in their endorsement of statements about advance planning for the cross-examination to conduct analyses. The most frequently cited explanation provided by participants who reported they did not have a strategy for the cross-examination was that the witness did not know what to expect. There were equal numbers of deceptive and truthful witnesses who cited uncertainly of what the cross-examination would entail. Thus, both deceptive and truthful witnesses appear uncertain about what to expect during cross-examination, and as a result both deceptive and truthful witnesses feel unable to prepare or strategize.

Attorney Perceptions of Witness Truthfulness. The direct examiner perceived deceptive witnesses to be more dishonest than truthful witnesses when the witnesses' testimony inculpated the defendant (i.e., when the witness accused the defendant of stealing the wallet). However, witness veracity did not affect the direct examiner's assessment of witness dishonesty when the testimony exculpated the defendant (i.e., when the witness was professing the defendant's innocence). Neither witness veracity nor evidence implication influenced cross-examining attorney's assessments of witness truthfulness. Why might the direct examining attorney have been able to discriminate between truthful and fabricated testimony, in at least some situations, while there were no differences in the cross-examining attorney's assessments of witness deceptiveness? Perhaps the individual acting as the direct examining attorney was a better detector of deception than the individual acting as the cross-examining attorney. Although some researchers have asserted that some individuals are better at detecting lies across situations (Elkman & O'Sullivan, 1991), a recent meta-analysis of individual differences in deception detection, found no differences between individuals in deception detection ability (Bond & DePaulo, 2008).

There are several situational aspects, however, that may help explain differences in the direct and cross-examining attorneys' assessments of witness deception. First, the direct examining attorney spent additional time with the witness, preparing for the upcoming testimony. Therefore, the direct examining attorney was able to question witnesses before they had rehearsed their testimony. The cross-examining attorney, however, only heard the witnesses' testimony after they had prepared answers. Research on deception detection during interrogations has found that individuals who viewed spontaneous statements demonstrated better detection accuracy than individuals who viewed suspects' statements after they had time to prepare what they would say (Bond & DePaulo, 2006). A few deception detection studies have examined detection performance when multiple interviews are conducted with a suspect (Granhag & Stromwall, 2001; 2002). When multiple interviews were conducted within witnesses, observers' detection performance significantly improved over three interrogations

(Grahnhag & Stromwall, 2001). Over interrogations, the cues observers reported relying on changed so that "consistency" was the most commonly cited strategy among observers by the third interrogation (Granhag & Stromwall, 2002). I did not gather perceptions of witness consistency, but it is also possible that hearing multiple testimonial statements by a witness about the event increased the direct examining attorney's sensitivity to factors relevant to perceptions of dishonesty.

A second reason for the differences in attorney accuracy may stem from the role of the direct examining attorney and the role of the cross-examining attorney. The role of the direct examining attorney was that of an ally and more investigative in nature than the cross-examining attorney. The cross-examining attorney's questions were designed to decrease witness credibility and were more accusatory in nature. The interrogation literature has identified two common strategies employed by interviewers, investigative interviewing and accusatory interviewing (Hartwig, Granhag, & Vrij, 2005). In investigative interviews, the interviewer is focused on gathering information and utilizes open ended questions. Accusatory interviewing focuses on accusations against the suspect. Investigative and accusatory interview techniques are similar to the processes of direct and cross-examination.

No research has experimentally examined whether the interview styles result in different accuracy rates in detecting deception, but one study conducted by Vrij (2006) found that investigative interviews elicited longer responses from the suspect, which may result in increased opportunities for deceptive individuals to display cues to deception. In contrast, research indicates the accusatory style interviews simply result in increased denials. It has been hypothesized that employing the accusatory style may make both liars and truth tellers nervous and feel pressure to appear credible. As a result, the behavior of the truth tellers and liars may be indistinguishable (Vrij, 2006). The results from the current study do not fully support the hypothesis that accusatory interviews results in nervousness across all interviewees, however. Although the cross examining attorney was unable to discriminate between truthful and deceptive witnesses on ratings of deceptiveness, the cross-examining attorney did perceive differences between liars and truth tellers in level of nervousness, in at least some conditions. Within the exculpatory testimony conditions, the cross-examining attorney rated deceptive witnesses who were cross-examined using research-based techniques as more nervous than deceptive witnesses who were cross-examined using traditional techniques. More empirical research is needed, however, to examine whether and how interview style influences perceptions of witness deception.

Influence of evidence implication

Research on deception detection in interrogations has focused on detection of exculpating statements. In general, research on deception detection in interrogations indicates individuals perform at chance levels when judging the veracity of exculpating statements. In the current research, the direct examiner also was unable to discriminate between truthful and fabricated exculpatory testimony. Within inculpatory testimony conditions, however, the direct examiner rated deceptive witnesses as more dishonest than truthful witnesses. Why might the direct examiner be more accurate in detecting deception in the inculpating testimony conditions? Deceptive witnesses who were providing exculpatory testimony were simply required to deny the defendant’s guilt. Deceptive witnesses in the inculpating testimony conditions, however, needed to provide more complex testimony that included information that did not actually occur, specifically that they witnessed the defendant take the wallet. Research on deception detection in interrogations has also found that more complex lies increase cues to deception (Vrij & Heaven, 1999). It may be that providing additional information increased the likelihood that the witness would provide inconsistent or inaccurate information. It may also be that providing inculpating testimony was a more difficult task and therefore placed the defendant under higher cognitive load. Research on deception detection in interrogations has found that placing suspects under higher cognitive load increases cues to deception and improves lie catchers' detection accuracy (Vrij, Mann, Fisher, Leal & Bull, 2008). Although it has not been studied extensively in the deception detection literature, researchers have also posited that a lie consisting of new information should be more difficult than lies that simply require concealing existing information (Vrij, 2007). The current research lends support to this hypothesis in that the outright lies necessary in inculpatory conditions were detected by the direct examining attorney while the lies in exculpatory conditions that simply required concealment of guilt were not.

Influence of cross-examination type

Witness reports of discomfort during direct and cross-examination. In the current study, the research-based cross-examination strategy was adapted from the Strategic use of evidence (SUE) technique, developed for the interrogation of suspects (Hartwig, et al, 2005). To review, research employing the SUE technique during interrogations has found that liars are reluctant to provide information for fear that the information may be incriminating. If questions concerning damaging evidence are introduced at the beginning of the interrogation, liars are able to incorporate the damaging information into their explanation of the event. However, if the SUE technique is employed and questions concerning damaging evidence are not asked until the end of the interrogation, there is greater opportunity for the lying suspect to incriminate himself. When interrogators use traditional techniques and both lying and truthful witnesses knew at the beginning of the interrogation the damaging information against them, there were no differences in evidence consistency between lying and truthful suspects (Hartwig et al., 2005). When interrogators used the SUE technique, however, lying suspects provided significantly more evidence inconsistent statements. When presented with the damaging evidence of guilt at the end of the interrogation, the lying suspects were "trapped" by their prior inconsistent statements.

In the current study, the strategic presentation of evidence during cross-examination increased dishonest witnesses' level of discomfort. Specifically, when lying witnesses were cross-examined using research-based strategies, strategies that placed questions concerning the damaging evidence at the end of the cross-examination, witnesses were significantly more likely to report feeling uncomfortable than were lying witnesses who were cross-examined using traditional strategies that introduced damaging evidence at the beginning of the cross-examination. Witnesses who provided truthful testimony concerning the guilt of the defendant did not differ in the level of discomfort they reported.

Cross-examination type also influenced witnesses' answers to key cross-examination questions. In traditional cross-examinations, witnesses were asked about the damaging information (i.e., the video surveillance footage that showed both the defendant and the witness standing next to the wallet) and then asked follow-up questions about each individual's exact location. In research based cross-examination, witnesses were first asked questions concerning each participant's location in relation to the wallet before they were asked about the damaging video surveillance information. Research on the SUE technique has found that when suspects do not know about damaging evidence against them, they attempt to distance themselves from incrimination by denying involvement (e.g., they will deny touching a briefcase that contained a stolen wallet when they do not know there is fingerprint evidence). On the other hand, if the damaging information is revealed at the beginning of the questioning, suspects will incorporate the damaging information into their account of the event (Hartwig et al, 2005). In the Hartwig et al (2005) study, suspects were proclaiming their own innocence; in the current study, witnesses to the event were responsible for implicating the defendant or proclaiming the defendant's innocence. There were no differences in witnesses' responses to questions concerning the defendant's location. There were differences, however, in witnesses' responses to questions concerning their own location during the event. When witnesses were cross-examined using traditional techniques and knew about the damaging surveillance information, they were more likely to state that they were standing next to the wallet than witnesses who were cross-examined using research-based techniques that did not reveal damaging evidence concerning their location until the end of the cross-examination.

An interaction between the -examination and witness veracity was observed on witnesses' responses to the damaging question concerning video surveillance footage. Truthful witnesses who were cross-examined using research-based techniques were more likely to provide an explanation for the video surveillance footage than deceptive witnesses who underwent a research-based cross-examination. When traditional cross-examination techniques were employed, there were no differences between truthful and deceptive witnesses' responses to the damaging question. Again, research on deception detection in interrogations has found that when the SUE technique is employed, truthful witnesses are able to explain the damaging information that is revealed at the end of the interrogation. Deceptive suspects, on the other hand, are unable to explain away the damaging information against them (Hartwig et al, 2005).

.In summary, witnesses cross-examined using research-based techniques were less likely to admit to initial questions concerning incriminating information. Waiting until the end of the cross-examination to ask damaging evidence questions also differentially influenced truthful and deceptive witnesses' answers to the damaging evidence question; deceptive witnesses were unable to explain away the damaging evidence when it was introduced at the end of the cross-examination. Research based cross-examinations also caused greater feelings of discomfort for deceptive witnesses as compared to truthful witnesses. This pattern of findings that research based cross-examinations creates behavioral differences between deceptive and truthful witnesses supports the use of the SUE technique as a tool that may improve observers' deception detection.

Although there were observed differences in dishonest witnesses' self-reported level of discomfort based on the type of cross-examination strategy, cross-examination type did not affect attorneys' ratings of witness deceptiveness; cross-examination type only affected the cross-examiner's ratings of witness nervousness. Ultimately, though, the courts believe in cross-examination's ability to assist triers of fact—not attorneys—in evaluating witness truthfulness. Therefore, the third phase of this experiment examined whether cross-examination type influenced mock jurors' ability to detect witness deception. In the third phase, the testimony of each witness was edited into a mock theft trial. Mock jurors from the community watched one of the versions of the trial, rendered verdicts, and provided ratings of the witnesses in the trial, including assessments of veracity.

Based on previous research (Hartwig et al., 2005), I predicted an interaction of cross-examination technique and witness veracity on judgments of truthfulness such that jurors viewing a research based cross-examination would be more accurate at discriminating between truthful and false testimony than would jurors who viewed a traditional cross-examination and jurors who did not view a cross-examination. Due to the increased complexity in fabricating inculpating statements as opposed to exculpating statements, I also predicted that jurors would be better at detecting deceptive inculpating statements than deceptive exculpating statements.

Phase III: Juror judgments of witness testimonies

Participants

Four hundred and nineteen jury-eligible community members participated in the third phase of the study. Participants were recruited via an online posting on craigslist.com that advertised for research participants in a jury decision-making study. The ad provided a link to an online survey that screened for juror eligibility. To be contacted to participate, interested individuals needed to indicate that they were a U.S. citizen, were 18 years of age or older, and either possessed a valid driver's license or were registered to vote. Experimenters contacted eligible individuals via email to schedule a participation time. Of the 420 jury-eligible individuals who participated (*M* age = 32, SD = 12.31), 59% were women, 39% were men, and 2% of participants did not indicate their sex. Fifty-three percent of participants identified their ethnicity as White, 21% as Black, 11% as Asian, 8% as Hispanic, and < 1% as "Other." Participants received $20 in return for their participation.

Materials.

Trial stimulus. The testimony from one witness could not be edited due to technical difficulties with the video equipment. Each of the remaining 105 witnesses' testimonies were edited into a separate mock theft trial that was filmed in the same mock courtroom in which the witnesses had previously testified. Truthful and deceptive witnesses who provided inculpating testimony were included as witnesses for the prosecution, and truthful and deceptive witnesses who provided exculpating testimony were included as witnesses for the defense. Because inculpating witnesses always testified for the prosecution and exculpating witnesses always testified for the defense, it is possible that observed differences between groups could be due to the side the eyewitness testified for instead of the intended manipulated variables. To partially address this concern, a security camera expert who provided neutral testimony regarding the capabilities of the security camera was filmed providing testimony for both the prosecution and the defense. Participants' ratings of this witness could then be analyzed for differences due to the side calling the witness and used as a covariate if differences arose. Two versions of the trial were created for each witness's testimony: one in which the security camera expert testified for the prosecution and one in which the security camera expert testified for the defense. Therefore, 210 separate versions of the trial were created (i.e., two versions of the trial for each of the 105 witnesses).

The remaining evidence included the testimony of the researcher conducting the scavenger hunt study and the police officer who conducted the investigation. The content of the remaining witnesses' testimonies was ambiguous so that the crucial evidence in the trial was the testimony of the defendant's scavenger hunt partner. During direct examination the researcher conducting the study testified about the scavenger hunt paradigm, her discovery of the missing wallet on the day in question, and her report of the theft to the police. During cross-examination, the researcher admitted it was possible that someone else could have entered the scavenger hunt room while she was not looking and have taken the wallet. During direct examination the police officer testified about his interview of the defendant and his partner (who either denied seeing the defendant take the wallet or implicated the defendant). The police officer also testified about his examination of the security camera tape that showed the defendant and his partner standing in front of the wallet, hand movement on the part of the defendant, and the wallet missing from view of the camera after the pair moved out of camera range. During cross-examination the police officer admitted that the wallet or its contents were never recovered. The trial also included judge's instructions and opening and closing statements from the attorneys. The trial was approximately 30 minutes in length.

Four jurors were assigned to view each witness's testimony that had been edited into one of two trial versions. Two jurors viewed the witness's testimony in a version of the trial that contained security camera expert testimony for the defense and two jurors viewed a version of the trial that contained expert testimony for the prosecution. Jurors were randomly assigned to watch a particular version of the trial.

Dependent measures.

Verdict. Jurors rendered a dichotomous verdict on the theft charge. Jurors also provided a rating of confidence in their verdict on a scale of 0 to 100 and provided a probability rating that the defendant committed the theft.

Ratings of participant witnesses. Participants rated the defendant's partner on a series of bipolar adjective pairs: dishonest-honest, nervous-calm, pleasant-hostile, unlikable-likeable, trustworthy-untrustworthy, sincere-insincere, not believable-believable, convincing-unconvincing, certain-uncertain, evasive-forthcoming. Participants made each their adjective ratings on a nine-point scale. Ratings were recoded when necessary so that higher ratings indicated more favorable impressions of the witness. Principal components with factor analysis with varimax rotation produced three factors with eigenvalues over 1. The first factor contained 9 items with loadings greater than .5, including how calm, pleasant, likable, trustworthy, sincere, believable, forthcoming, convincing, and certain the participants perceived the witness to be. The second factor contained a single item with a loading greater than .5, witness honesty. The third factor did not contain any items with loadings greater than .5. Although reliability analyses indicated that all 10 items yielded a sufficiently reliable scale ($\alpha = .83$), scale reliability was higher with the honesty item removed ($\alpha = .86$). Therefore, the remaining nine items were averaged to create a perception of eyewitness scale. Separate analyses were performed with jurors' ratings of witness honesty as the dependent variable.

For jurors who viewed both direct and cross-examination, a principal components analysis with varimax rotation was conducted with the jurors' ratings of the eyewitness's direct and cross-examination. The analysis contained the following items: a) The eyewitness's answers during direct testimony were truthful; b) the eyewitness's answers during the direct examination were detailed; c) the eyewitness's answers during direct examination were vague; d) the eyewitness's answers during cross- testimony were truthful; e) the eyewitness's answers during the cross-examination were detailed; and f) the eyewitness's answers during cross-examination were vague. Ratings of agreement were recoded when necessary so that higher ratings indicated more favorable impressions of the witness's testimony. The analysis yielded two meaningful factors with loadings higher than .8. The first factor contained the two items concerning the truthfulness of witness testimony during direct examination and the truthfulness of witness testimony during cross-examination. These two items were averaged to form a truthfulness scale that had excellent reliability ($\alpha = .93$). The second factor contained the four items concerning the level of detail included in the direct examination and the level of detail included in the cross-examination. These four items were averaged to form a scale measuring perceptions of testimonial detail; the scale had good reliability ($\alpha = .88$).

Ratings of prosecuting and defense attorneys. Participants rated the prosecuting and defense attorneys on a series of bipolar adjective scales: dishonest-honest, nervous-calm, pleasant-hostile, unlikable-likeable, trustworthy-untrustworthy, sincere-insincere, not believable-believable, convincing-unconvincing, certain-uncertain, evasive-forthcoming. Participants rated the pairs using nine-point scales. Principal components analysis with varimax rotation on ratings of the prosecuting attorney yielded one meaningful factor. All ten items had loadings higher than .5 and were recoded when necessary so that higher ratings indicated more favorable impressions of the prosecuting attorney. Reliability for the scale was good (α = .89). Principal components analysis with varimax rotation on ratings of the defense attorney yielded one meaningful factor. All 10 items had loadings higher than .5 and were recoded when necessary so that higher ratings indicated more favorable impressions of the defense attorney. The scale's reliability was excellent (α = .90).

Ratings of the security camera expert. Participants rated the security camera expert on a series of bipolar adjective scales (dishonest-honest, nervous-calm, pleasant-hostile, unlikable-likeable, trustworthy-untrustworthy, sincere-insincere, not believable-believable, convincing-unconvincing, certain-uncertain, evasive-forthcoming), using nine-point scales. Ratings were recoded when necessary so that higher ratings indicated more favorable impressions of the expert.

Jurors rated the direct and cross-examination of the security camera expert's testimony by indicating their agreement with a number of statements on nine-point Likert-type scales, with higher numbers indicating higher level of agreement with the statement. Jurors rated the following statements: a) The security camera expert's answers during direct testimony were truthful; b) the security camera expert's answers during the direct examination were detailed; c) the security camera expert's answers during direct examination were vague; d) the security camera expert's answers during cross- testimony were truthful; e) the security camera expert's answers during the cross-examination were detailed; and f) the security camera expert's answers during cross-examination were vague. Ratings of agreement were recoded when necessary so that higher ratings indicated more favorable impressions of the expert's testimony.

Ratings of evidence strength. Participants rated their perceptions of the evidence presented during trial on nine-point Likert-type scales, with higher numbers indicating greater perceptions of evidence strength. Participants rated the following statements: a) The defense's case was strong; b) The prosecution's case was strong; c) The evidence against the defendant in this case was weak; d) The eyewitness's testimony was strong; and d) The physical evidence against the defendant was strong.

Procedure

Up to 10 participants were scheduled for each study session, and each participant viewed one of 210 trial versions on a separate laptop equipped with headphones. When participants arrived at the mock courtroom, the experimenter seated them in front of a laptop and provided them with the consent form to read and sign. After completing a short demographic questionnaire, the experimenter provided the participants with headphones and informed them they were to watch a theft trial on the laptop. After watching the trial, participants completed the post trial questionnaire. Upon completion of the post trial questionnaire, participants were debriefed, paid, and thanked for their time.

Results

Ratings of the neutral security camera expert

To examine whether there were differences in participants' ratings of the security camera expert as a function of whether the expert testified for the prosecution or the defense, a 2 (Expert Witness Side) X 2 (Evidence Implication) X 2 (Witness Veracity) X

3 (Cross-Examination Type) MANOVA was conducted with witnesses' ratings of their perceptions of the expert witness on the bipolar adjective scales as the dependent variable. A 2 (Expert Witness Side) X 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) MANOVA was also conducted with witnesses' ratings of agreement on the series of statements related to the direct and cross-examination of the security camera expert as the dependent variable. Across all analyses, one significant three-way interaction between witness veracity, evidence implication, and cross-examination of witness type was observed $F(2, 357) = 1.70$, $p = .01$, partial $\eta^2 = .07$, Across all other manipulations, all F -values were less than 1.04, all p-values were greater than .21, and all partial Eta-square values were less than .04. With the exclusion of the three way-interaction between witness veracity, evidence implication and cross-examination type, there were no significant differences in participants' ratings of the expert witness based upon whether the expert testified for the prosecution or the defense. Therefore, for the remaining analyses I collapsed across the expert testimony side.

Ratings of Guilt

Confidence in guilt ratings were computed by multiplying jurors' dichotomous ratings of guilt by jurors' reported confidence in their verdict so that scores would range from -100 to 100. A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA with witnesses nested within the three-way interaction was conducted with jurors' confidence in guilt scores as the dependent variable. A main effect of evidence implication was observed, $F(1,102) = 14.29$, $p < .01$, partial $\eta^2 = .04$. Jurors who viewed witnesses who provided exculpating testimony were more confident in their not guilty verdicts (*M* = -62.97) than were jurors who viewed witnesses who provided inculpating testimony (*M* = -38.83).

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA with witnesses nested within the three-way interaction was conducted with jurors' ratings of the probability of commission as the dependent variable. A main effect of evidence implication was observed, $F(1, 103) = 15.96$, $p < .01$, partial $\eta^2 = .04$. Jurors who viewed testimony in which the eyewitness inculpated the defendant provided higher ratings of the probability of commission (*M* = 56.36) than did jurors who viewed testimony in which the eyewitness's testimony exculpated the defendant (*M* = 46.58). No other significant main effects or interactions were observed.

Ratings of the eyewitness

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA with witnesses nested within the three-way interaction was conducted with jurors' ratings of the honesty of the witness's testimony on the bipolar adjective scale as the dependent variable. No significant main effects or interactions were observed.

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA with witnesses nested within the three-way interaction was conducted with jurors' ratings of the agreement with the statement that the witness's testimony was consistent as the dependent variable. A main effect of cross-examination type was observed, $F(2, 102) = 3.93$, $p = .02$, partial $\eta^2 = 07$. Follow-up univariate analyses revealed witnesses who were cross-examined using traditional techniques were perceived as more consistent during their testimony (*M* = 8.18) than witnesses who were cross-examined using research-based techniques (*M* = 6.19). There were no significant differences in ratings between the no cross-examination condition and either the research-based or the traditional cross-examination conditions.

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA with witnesses nested within the three-way interaction was conducted with jurors' scores on the perceptions of the eyewitness scale as the dependent variable. There was a significant main effect of evidence implication, $F(1, 100) = 4.16$, $p = .04$, partial $\eta^2 = .04$. Jurors who viewed witnesses providing exculpating testimony provided more favorable ratings of the eyewitness (*M* = 6.10) than did jurors who viewed witnesses providing inculpating testimony (*M* = 5.74). A significant effect of witnesses nested within the three-way interaction was also observed, $F(95, 100) = 1.57$, $p < .01$, partial $\eta^2 = .33$, suggesting that there were individual differences in the witnesses influenced the favorability of the ratings that the participants provided.

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA with witnesses nested within the three-way interaction was conducted with the testimonial truthfulness scale as the dependent variable. A main effect of evidence implication was observed, $F(1, 103) = 6.61$, $p = .01$, partial $\eta^2 =.06$. Jurors who viewed witnesses provided exculpating testimony rated the testimony as more truthful (*M* = 6.68) than did jurors who viewed witnesses providing inculpating testimony (*M* = 6.25). No other significant main effects or interactions were observed.

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA with witnesses nested within the three-way interaction was conducted with the level of detail scale as the dependent variable. A marginally significant effect of witness nested within the three-way interaction was also observed, $F(100, 95) = 1.26$, $p = .08$, partial $\eta^2 = .28$.

Ratings of the attorneys

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA with witnesses nested within the three-way interaction was conducted with jurors' scores on the perception of the prosecuting attorney scale as the dependent variable. A main effect of evidence implication was observed, $F(1, 103) = 42.09$, $p < .01$, partial $\eta^2 = .09$. The prosecuting attorney was viewed more favorably when jurors viewed witness testimony that inculpated the defendant ($M = 6.61$) than when jurors viewed witness testimony that inculpated the defendant ($M = 5.67$).

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA with witnesses nested within the three-way interaction was conducted with jurors' scores on the perception of defense attorney scale as the dependent variable. A main effect of evidence implication was observed, $F(1, 103) = 29.10$, $p < .01$, partial $\eta^2 = .09$. The defense attorney was viewed more favorably when jurors viewed witness testimony that exculpated the defendant ($M = 7.07$) than when jurors viewed witness testimony that inculpated the defendant ($M = 6.15$).

Perceptions of evidence strength

A 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVA with jurors' ratings of agreement with the statement that the case was weak as the dependent variable. A main effect of evidence implication was observed $F(1,102) = 15.34$, $p<.01$, partial $\eta^2 = .13$. Jurors who viewed exculpating testimony provided higher ratings of agreement ($M = 7.06$) than did jurors who viewed inculpating testimony ($M = 6.18$). Separate 2 (Evidence Implication) X 2 (Witness Veracity) X 3 (Cross-Examination Type) ANOVAs were conducted with jurors' ratings of the strength of the prosecution's case and the strength of the defense's case as the dependent variables. A main effect of evidence implication was observed for jurors' ratings of the strength of the prosecution's case, $F(10,102) = 15.13$, $p < .01$, partial $\eta^2 = .13$. Jurors who viewed inculpating eyewitness testimony rated the prosecution's case as stronger ($M = 5.24$) than did jurors who viewed exculpating eyewitness testimony. Similarly, jurors who viewed exculpating eyewitness testimony rated the defense's case as stronger ($M = 7.34$) than did jurors who viewed inculpating eyewitness testimony ($M = 6.20$), $F(1, 102) = 8.85$, $p < .01$, partial $\eta^2 = .08$.

Discussion

Influence of cross-examination

Contrary to my predictions, jurors who viewed a research based cross-examination were not more accurate at discriminating between truthful and fabricated testimony than were jurors who viewed a traditional cross-examination or jurors who did not view a cross-examination. Research-based cross-examination failed to influence jurors' perceptions of eyewitness truthfulness despite findings that the similarly structured SUE technique improves deception detection accuracy in interrogations and that the deceptive witnesses who were cross-examined using research-based techniques in the current study reported feeling more discomfort than deceptive witnesses who were cross-examined using traditional techniques.

Prior psycho-legal research examining the effects of cross-examination on jurors' evaluations of witness testimony has found mixed results, depending on what aspect of the testimony a juror was evaluation and what type of witness of the jurors was evaluating. Prior research has found that jurors use information gleaned during cross-examination to evaluate the accuracy of an eyewitness's testimony (Berman et al, 1995) and that certain cross-examination techniques assist jurors in discriminating between accurate and inaccurate testimony (Wells et al, 1979). Other research has found that damaging questions during cross-examination influenced jurors perceptions of the credibility of an expert witness but did not influence the perceived credibility of a rape victim's testimony (Kassin et al, 1999). Research examining the influence of cross-examination on perceptions of expert testimony has failed to identify cross-examination techniques that assist jurors in discriminating between expert testimony based on valid science versus testimony based on invalid science (Kovera et al, 1999).

The type of cross-examination witnesses underwent only influenced jurors' evaluations of the consistency of the witnesses' testimonies. Jurors rated witnesses who underwent traditional cross-examination to be more consistent during their testimony than witnesses who underwent research-based cross-examination. This finding is consistent with findings that traditional methods of interrogation in which damaging evidence is introduced at the beginning of questioning allows individuals under interrogation to incorporate the damaging information into their account of the event, whereas suspects who are interrogated using the SUE technique and are unaware of the evidence against them, provide information that is more inconsistent with the damaging evidence (Hartwig et al, 2005). However, more inconsistencies occurred in deceptive suspects' statements, and the more inconsistencies included in a suspect's statement, the more likely the suspect was to be perceived as deceitful (Hartwig et al., 2005). In the current study, lack of consistency in witnesses undergoing research-based examinations did not influence jurors' perceptions of witness deception.

Why did both traditional and research-based cross-examinations fail to influence jurors' evaluations of witness truthfulness? Recent research that has focused on employing similar interrogation strategies, such as the SUE technique, has successfully improved deception detection accuracy. Are there aspects of the trial setting that impede the efficacy of this technique when it comes in the form of cross-examination? Perhaps the context in which evaluators hear the witnesses' accounts of events influences evaluators' perceptions of witness truthfulness. For example, people perceive alibi evidence presented in an investigational setting to be stronger than alibi evidence presented in a trial setting (Sommers & Douglass, 2007). Jurors may infer that the district attorney must not have believed the alibi to be credible to continue prosecuting the case, and therefore, jurors perceived the alibi to be weaker in the trial setting than in the investigative setting. Research has also found that individuals are also more persuaded by expert evidence when it is presented within a trial setting compared to an out of trial context (Schweitzer & Saks, 2009). Schweitzer and Saks (2009) hypothesized that jurors perceived the expert more favorably in a trial context because the judge had admitted the testimony, causing jurors to infer that the judge thought the expert was credible.

It is possible that laypersons' perceptions of witness truthfulness may differ in the context of an investigation compared to a trial setting. Little is known about jurors' expectations for cross-examinations in criminal trials. Future research should examine what jurors expect from cross-examinations of witnesses and how these expectations influence perceptions of witnesses who are cross-examined. For example, it may be that jurors expect attorneys to be combative during cross-examination and expect that attorneys will attempt to destroy the witness's credibility. As a result, jurors may be skeptical of information gleaned during cross-examination and do not incorporate the cross-examination of the witness into their decision-making process. Kassin et al (1990) found differential effects for cross-examinations that attack witness credibility, depending on whether the witness was an expert or a rape victim. Attacking questions during cross-examinations reduced the credibility of an expert witness but did not influence evaluations of the rape victim's credibility. It is possible that jurors expected that the attorney would always attack the credibility of a victim in a rape case and therefore did consider it valid information to consider in their evaluations of the witness.

Although an empirical question, some evidence for the negative influence of cross-examination can be found in jurors' ratings of the prosecuting and defense attorneys when the eyewitness was providing inculpating testimony versus exculpating testimony. The prosecuting attorney received significantly lower ratings of favorability when the eyewitness provided exculpating testimony. When the eyewitness provided exculpating testimony, the prosecuting attorney was responsible for cross-examining the witness. Similarly, the defense attorney received significantly lower ratings of favorability when the eyewitness provided inculpating testimony, and the defense attorney was responsible for cross-examining the eyewitness. Because one attorney always conducted the cross-examinations, it is not known whether differences in evaluations are because of characteristics of the actors playing the two attorneys or because the cross-examining attorney was attacking the credibility of the key witness in the case. Future research should empirically examine whether jurors distrust what is revealed during cross-examination, which would limit the ability of cross-examination to serve its purpose of revealing evidence of a witness's deception.

Perhaps the content of witnesses' cross-examinations did not influence jurors' evaluations of witness truthfulness because jurors relied on heuristic information about the witness to guide their perceptions. Jurors may rely on heuristic processing of witness evidence when the evidence is ambiguous (Brewer & Hupfeld, 2004). Brewer and Hupfeld (2004) cited the situation that occurred in the current study—the witness's testimony was the sole evidence in the case and the attorney planted seeds of doubt about the witness's credibility during cross-examination—as an example of ambiguous evidence. The cross-examination of the witness may have damaged the witnesses' credibility and caused the jurors to rely on heuristic processing in their decision-making process. As a result, other characteristics of the witnesses or the witnesses' testimonies influenced the jurors' perceptions as opposed to the content of the witnesses' testimonies. Other juror decision-making studies have found that when eyewitness evidence is ambiguous, jurors are more likely to be biased by witness characteristics (Baumeister & Darley, 1982; Bodenhausen & Lichtenstein, 1987). In the current study, jurors were more influenced by characteristics of the witness's testimony, specifically whether the witnesses provided inculpating or exculpating testimony, than by the type of cross-examination the witnesses underwent.

Influence of evidence implication

The evidence implication manipulation differentially influenced jurors depending on the whether jurors were rating the defendant's guilt or were rating the eyewitness. Jurors who viewed witnesses who provided inculpating testimony were more confident in defendant guilt ratings and provided higher probability of commission ratings than jurors who viewed exculpating testimony. Jurors also rated the prosecution's case as stronger when the eyewitness provided inculpating testimony than when the eyewitness provided exculpating testimony.

When rating the eyewitness, however, jurors perceived the eyewitnesses who provided exculpating testimony more favorably than eyewitnesses who provided inculpating testimony. Jurors' ratings of the truthfulness of the eyewitness testimony were also higher for exculpating eyewitnesses than for inculpating eyewitnesses. This finding is supported by the social psychological concept of correspondent inference theory which asserts that individuals are unlikely to account for situational explanations of other people's behavior (Jones & Harris, 1967). For example, people are more likely to rate an individual who gives a favorable Fidel Castro speech to possess pro Castro attitudes, regardless of whether the experimenter informs the raters that the individual was assigned to give a favorable Castro speech or the individual had freely chosen to give a favorable Castro speech (Jones & Harris, 1967).

In the current study, it appears as if jurors were considering witness motivation in their judgments of the eyewitnesses. In exculpating witness conditions, witnesses provided testimony that was in support of the defendant's innocence. During cross-examination, questions implied that the witness could be lying to protect the defendant. In this situation, if the witnesses were lying, they would be doing so to protect someone they did not know. Inculpating witnesses provided testimony in support of the defendant's guilt, and during cross-examination, questions implied that the witness could be lying to protect themselves. It is possible that jurors were relying on the motivation of the witness as a determinant of witness truthfulness. It makes intuitive sense that a witness would be unlikely to take the stand and lie for someone they did not know, whereas a witness who is implicating the defendant could be lying to protect themselves. Jurors appear to consider the motivation of an alibi witness when making determinations of guilt. Jurors were more likely to acquit a defendant when corroborating alibi evidence was provided by an individual who had no prior relationship with the defendant than by an alibi who had a relationship with the defendant (Culhane & Hosch, 2004; Olson & Wells, 2004). In the current study, it may be that witnesses who were providing exculpating evidence were perceived to be unmotivated to provide false testimony whereas jurors perceived witnesses who provided inculpating evidence as self-motivated to provide false testimony.

Influence of individual differences between witnesses

Individual differences among the witnesses also influenced jurors' judgments. Individual differences between witnesses influenced jurors' perceptions of the eyewitness and had a marginally significant effect on ratings of the level of detail provided by the eyewitness. Furthermore, across all analyses, the largest effect sizes were observed for the effect of witnesses nested within the three way interaction. Although the Bond and DePaulo (2008) meta-analysis examining individual differences in deception detection during interrogations found no individual differences between lie detectors, individual differences were observed in the suspects. Individual suspects differed in their ability to conceal deception. Individual differences also were observed in the perceived credibility of suspects; credibility had a larger influence on ratings of honesty than the actual veracity of the suspect. Similarly, individuals' demeanor has a significant influence on perceptions of truthfulness (DePaulo & Rosenthal, 1979). When evaluators perceived someone to be most honest, they also perceived that person to be honest irrespective of whether that person was lying or telling the truth. People consistently rate individuals to be honest or deceptive, even when the judgments are incorrect (Bond & Kraut, 2008).

This research suggests that in the case of witness testimony in court, it is possible that perceptions of credibility and honesty carry across both direct and cross-examinations. Perhaps some dishonest and honest witnesses came across as honest during both the direct examination and the cross-examination, while other witnesses may have come across as dishonest, despite the actual veracity of their testimony. Although it is important to understand whether various cross-examination techniques influence jurors evaluations across witnesses, future research could examine whether individuals' general credibility influences perceptions of deceptive witnesses across both direct and cross-examinations, and whether various cross-examination techniques are effective at revealing deception on the part of witnesses who generally appear credible.

CHAPTER THREE: GENERAL DISCUSSION

This study found that conducting cross-examinations that introduce damaging information at the end of the questioning period creates more discomfort for deceptive witnesses than traditional methods that introduce damaging information at the beginning of the interrogation. During cross-examination, witnesses undergoing a research-based cross-examination who did not know the evidence against them were less likely to admit that they were standing near the damaging evidence. However, when asked about the damaging information at the end of the questioning, truthful witnesses were able to provide an explanation for the evidence, whereas deceptive witnesses did not provide an explanation. Although jurors perceived witnesses who underwent research-based cross-examinations to be less consistent during their testimony, neither traditional nor research-based cross-examinations improved jurors' ability to differentiate between truthful and fabricated testimony. Instead, in line with correspondent inference theory (Jones & Harris, 1967), jurors judged exculpating witness testimony to be more truthful than inculpating testimony. In sum, although research-based cross-examinations created behavioral differences between truthful and deceptive witnesses, research-based cross-examinations did not cause jurors to perceive differences between lying and truthful witnesses.

The courts rely on cross-examination to assist jurors in judging multiple aspects of a witness's testimony, including the accuracy, the credibility, and the truthfulness of a witness's testimony. Prior psycho-legal research has found mixed results regarding the effectiveness of cross-examination depending on what aspect of the testimony and what type of witness a juror is evaluating. Jurors use information gleaned during cross-examination to evaluate the accuracy of an eyewitness's testimony (Berman et al., 1995) and certain cross-examination techniques assist jurors in discriminating between accurate and inaccurate eyewitness testimony (Wells et al., 1979). Damaging questions during cross-examination influence jurors' perceptions of the credibility of an expert witness but not the perceived credibility of a rape victim's testimony (Kassin et al., 1999). The cross-examination techniques investigated to date do not assist jurors in discriminating between expert testimony based on valid science versus invalid science (Kovera et al., 1999). In the current study, cross-examination failed to assist jurors in discriminating between truthful and fabricated testimony. Thus, there are differential effects of cross-examination depending upon the type of witness and the purpose of the cross-examination, and more research is needed to identify jurors' expectations for attorney behavior and factors that influence the effectiveness of cross-examination within each of these situations. For example, perhaps jurors believe that attorneys attempt to discredit most but not all witnesses, regardless of the truthfulness or accuracy of their testimony but that attorneys will be gentle in their cross-examination of rape complainants unless they truly believe that the complainant is lying.

The particular methods employed to examine differences in judgments of witness truthfulness may have influenced the current study's findings. In this study, research assistants, acting as attorneys, conducted the direct and cross-examinations of witnesses. The mock attorneys also asked scripted questions of the witnesses. It is possible that experienced trial attorneys would be better at conducting cross-examinations and that the cross-examining attorney could ask follow-up questions that would be helpful to jurors' judgments of veracity. However, there is no research to support the assertion that experienced attorneys' cross-examinations would be better at assisting juror's judgments of truth. Prior research found no differences in jurors' guilt judgments between attorneys and third year law students who direct and cross-examined accurate and inaccurate eyewitnesses (Wells et al, 1989). Furthermore, if experienced attorneys adhere to the prescribed rules of cross-examination, they would not ask spontaneous questions during cross-examinations; trial technique manuals strictly admonish attorneys to only ask previously prepared questions during cross-examination.

The methods of a typical jury decision-making study may have influenced jurors' deception detection abilities. In this study, mock jurors viewed a videotaped trial that included one of the eyewitnesses from Phase I. It may be the case that jurors can more readily detect deception during live, in-court testimony than when watching a trial video. It may also be the case that watching an entire trial from the perspective of a juror is a different experience than viewing an interrogation with the task of specifically judging the veracity of a suspect. Perhaps in the context of a trial, other trial evidence diluted the impact of the eyewitness's testimony. Opening statements or prior testimony by other witnesses may have altered jurors' judgments of the eyewitness's testimony. Future research should explore how these factors influence jurors' judgments of cross-examinations.

It is also possible that the specific cross-examinations conducted in this study were ineffective at assisting jurors, and cross-examinations utilizing other strategies would improve jurors' ability to detect deceptive witnesses. For example, research on interrogation strategies has found that asking questions in reverse order places suspects under higher cognitive load and increases deception detection accuracy rates (Vrij et al, 2009). Trial technique manuals recommend that attorneys question a witness in a disjointed manner so that the witness is unaware of the purpose of the line of questioning until they have answered the question of interest. Although varying the chronological order of questioning may be useful for discriminating between liars and truth tellers, the story model of juror decision-making (Pennington & Hastie, 1986) suggests that in the context of a trial jurors are most influenced by evidence that is presented in chronological order or story form (Pennington & Hastie, 1992). So although jurors may be able to better discriminate between liars and truth tellers when the witness is questioned about events in a non-chronological order, they may actually be less likely to incorporate the information presented in the testimony into their understanding of the event because the information was not presented in the story order form that is easiest for them to process. Again, little is know about jurors' expectations for cross-examination. To identify effective cross-examination strategies, it seems prudent to explore jurors' expectations for cross-examination.

It has been argued that witnesses undergoing cross-examination do not tell outright lies often; instead witnesses are providing shades of truth during their testimony (Park, 2003). According to this argument, cross-examination is deigned to vet these shades of truth instead of reveal a smoking gun. This study was designed to examine situations in which witnesses tell outright lies. If jurors are unable to discriminate between outright lies and truths during cross-examination, then it is unlikely that jurors will perceive differences between more subtle lies and truths. This is an empirical question, however, and clearly, more research is needed to understand the effectiveness of the multiple purposes of cross-examination across a variety of situations.

This study was the first to examine whether cross-examination assists jurors' ability to discriminate between truthful and fabricated testimony. Although cross-examination did not improve jurors' veracity judgments, cross-examination type did influence the witnesses' behavior during their testimony. Deceptive witnesses who underwent a research based cross-examination reporter greater feelings of discomfort than deceptive witnesses who underwent a traditional cross-examination. Differences in deceptive witnesses' self-reports of discomfort based on the type of cross-examination they underwent is important because it indicates that certain cross-examinations, such as those based on the SUE technique, can influence deceptive witnesses' behavior and create cues for jurors who are judging the truthfulness of a witness's testimony. Future research should explore methods that will highlight these behavioral cues for jurors to consider in their judgments.

For example, interrogators who are trained to implement the SUE technique during interrogations are better at detecting deceptive suspect statements than are interrogators who are not trained to implement the SUE technique (Hartwig, Granhag, Stromwall, & Kronkvist, 2006). If an attorney suspects a witness provided false testimony, the attorney may want to highlight behavioral cues the witness displayed during their testimony that are indicative of deception. Alternatively, jury instructions could be altered to instruct jurors more thoroughly on judging the veracity of witness testimony. It is possible that a research based cross-examination that creates behavioral cues to deception, in conjunction with information about deception detection, will improve jurors' ability to discriminate between truthful and fabricated testimony. Cross-examination is a component of the trial process that is considered a crux of the adversarial process, and as such, research is needed to explore how jurors perceive cross-examination and whether certain cross-examination techniques can improve jurors' judgments of witness veracity.

APPENDIX

Scavenger Hunt Instructions

Participant 1

Scavenger Hunt

Instructions: You and your partner need to work as a team to complete this scavenger hunt. Try to work as accurately and as quickly as possible. You and your partner will each receive an instructional sheet; some of the information and instructions may be different, so you need to work together to complete the tasks. Each Person will be responsible for different clues, so pay attention to who is instructed to do what. Work through each of the clues. You will have a maximum of 10 minutes to complete this task. If you get through each of the clues within 10 minutes, come get me in room 2423. If you have not come to get me in 10 minutes, I will come back to the lab.

Task 1: Participant 1, Read the first clue:

Find A musical CD on the shelf, it could be near a little blue elf

Participant one, There will be a clue hidden somewhere in the CD leading you to the next item. There will also be a question you have to answer. Write the answer to the question here:

Answer ______________________

Task 2: Participant 1: Keep the item you find in task 2 to show to later show to the researcher.

Task 3: Participant 2 Task

Task 4: Participant 2 Task

Task 5: Participant 1: Read the clue from Task 4 for your final Clue!

Participant 2

Scavenger Hunt

Instructions: You and your partner need to work as a team to complete this scavenger hunt. Try to work as accurately and as quickly as possible. You and your partner will each receive an instructional sheet; some of the information and instructions may be different, so you need to work together to complete the tasks. Each Person will be responsible for different clues, so pay attention to who is instructed to do what. Work through each of the clues. You will have a maximum of 10 minutes to complete this task. If you get through each of the clues within 10 minutes, come get me in room 2423. If you have not come to get me in 10 minutes, I will come back to the lab.

Task 1: Participant 1

Task 2: Participant 1

Task 3: Participant 2: Read the clue attached to Task 2 for your next task

Task 4: Participant 2: keep the item to show to the researcher.

Task 5: Participant 1

Instructions to witness prior to videotaping the testimony

Truthful witness for the Prosecution

This is a study on witness testimony in court. The Prosecuting attorney, will prepare you to testify about the theft today. Your job is to provide testimony for the prosecution that **you witnessed the defendant steal the wallet** from the briefcase. The attorney is part of the study and does not know whether you actually witnessed the defendant steal the wallet or not. Your task is to act as if you witnessed the defendant steal the wallet and to provide in court testimony that the defendant stole the wallet.

Take a few minutes to think about your testimony, and in a minute the prosecuting attorney will be in to go over your testimony. They will then take you into the courtroom, and you will be seated behind the witness stand. Once you are sworn in, you will provide testimony asserting that the defendant did steal the wallet. You will then be cross-examined by the defense attorney. Your job is to convince the jury that the defendant is guilty of theft. Your testimony will be videotaped and will later be shown to jurors who will make judgments about your testimony and the guilt of the defendant. We appreciate if you help us to make this study as realistic as possible. Try as hard as you can to convince the attorneys and the jurors who will later watch your testimony that the defendant is guilty. Four jurors will later be watching your testimony. If you manage to get three of the four jurors to believe your testimony, you will be entered into a raffle and have the chance of being one of three participants to win $100 each.

Deceptive witness for the Prosecution

This is a study on witness testimony in court. The prosecuting attorney will prepare you to testify about the theft today. Your job is to provide testimony for the prosecution that **you witnessed the defendant steal the wallet** from the briefcase. *I know that you did not actually witness the defendant stealing, but I want you to try to convince "the jury" that you did witness the defendant committing the theft.* The attorney is part of the study and does not know whether you actually witnessed the defendant steal the wallet or not. *You should not tell the attorney that you did not actually witness the defendant stealing the wallet.* Your task is to act as if you witnessed the defendant steal the wallet and to provide in court testimony that the defendant stole the wallet.

Take a few minutes to think about your testimony, and in a minute the prosecuting attorney will be in to go over your testimony. The prosecuting attorney does no know whether you are lying or telling the truth, they will be questioning you under the assumption that you did in fact witness the defendant stealing the wallet. They will then take you into the courtroom, and you will be seated behind the witness stand. Once you are sworn in, you will provide testimony asserting that the defendant did steal the wallet. You will then be cross-examined by the defense attorney. Your job is to convince the jury that the defendant is guilty of theft. Your testimony will be videotaped and will later be shown to jurors who will make judgments about your testimony and the guilt of the defendant. We appreciate if you help us to make this study as realistic as possible. Try as hard as you can to convince the attorneys and the jurors who will later watch your testimony that the defendant is guilty. Four jurors will later be watching your testimony. If you manage to get three of the four jurors to believe your testimony, you will be entered into a raffle and have the chance of being one of three participants to win $100 each.

Truthful witness for the Defense

This is a study on witness testimony in court. The defense attorney will prepare you to testify about the theft today. Your job is to provide testimony for the defense that **the defendant did not steal the wallet he is accused of stealing**. The attorney is part of the study and does not know whether you actually witnessed the defendant steal the wallet or not. Your task is to act as if did not witness the defendant steal the wallet and to provide in court testimony that the defendant did not steal the wallet.

Take a few minutes to think about your testimony, and in a minute the defense attorney will be in to go over your testimony. They will then take you into the courtroom, and you will be seated behind the witness stand. Once you are sworn in, you will provide testimony asserting that the defendant did steal the wallet. You will then be cross-examined by the prosecuting attorney. Your job is to convince the jury that the defendant is not guilty of theft. Your testimony will be videotaped and will later be shown to jurors who will make judgments about your testimony and the guilt of the defendant. We appreciate if you help us to make this study as realistic as possible. Try as hard as you can to convince the attorneys and the jurors who will later watch your testimony that the defendant is innocent. Four jurors will later be watching your testimony. If you manage to get three of the four jurors to believe your testimony, you will be entered into a raffle and have the chance of being one of three participants to win $100 each.

Deceptive witness for the Defense

This is a study on witness testimony in court. The Defense attorney will prepare you to testify about the theft today. Your job is to provide testimony for the defense that you were with the defendant and that the defendant did **not steal the wallet he is accused of stealing**. *I know that you did actually witness the defendant stealing, but I want you to try to convince "the jury" that the defendant did not steal the wallet.* The attorney is part of the study and does not know whether you actually witnessed the defendant steal the wallet or not. *You should not tell the attorney that you actually witnessed the defendant stealing the wallet.* Your task is to act as if you did not witness the defendant stealing the wallet and to provide in court testimony that the defendant did not steal the wallet.

Take a few minutes to think about your testimony, and in a minute the defense attorney will be in to go over your testimony. They will then take you into the courtroom, and you will be seated behind the witness stand. Once you are sworn in, you will provide testimony asserting that the defendant did steal the wallet. You will then be cross-examined by the prosecuting attorney. Your job is to convince the jury that the defendant is not guilty of theft. Your testimony will be videotaped and will later be shown to jurors who will make judgments about your testimony and the guilt of the defendant. We appreciate if you help us to make this study as realistic as possible. Try as hard as you can to convince the attorneys and the jurors who will later watch your testimony that the defendant is innocent. Four jurors will later be watching your testimony. If you manage to get three of the four jurors to believe your testimony, you will be entered into a raffle and have the chance of being one of three participants to win $100 each.

Direct Examination (Prosecution)

(after the witness is sworn in)

Could you please state your name for the record?

Thank you. Can you please tell the court where you were on the day in quetion?

Were you with anyone at that time?

Who were you with?

What were you doing?

Could you tell the court exactly what happened when you were participating in the research study?

You are sure you saw the defendant take the wallet?

Where did the defendant put the wallet?

Thank you, I have no further questions your honor.

Cross Examination (Defense)

Traditional Cross

What would you say if I told you we have video surveillance footage that shows both you and the defendant standing near the bag?

Earlier you testified that you saw the defendant take the wallet in question, correct?

So the defendant was standing near the bag with the wallet on it?

Were you standing next to the bag with the wallet on it?

So you both had the opportunity to take the wallet?

Do you have reason to lie for the defendant?

No further questions, Your Honor

Research based Cross

Earlier you testified that you saw the defendant take the wallet in question, correct?

So the defendant was standing near the bag with the wallet on it?

Were you standing next to the bag with the wallet on it?

So you both had the opportunity to take the wallet?

What would you say if I told you we have video surveillance footage that shows both you and the defendant standing near the bag?

Which is correct, the defendant was standing ____________ or you and the defendant were standing by the bag?

Do you have reason to lie for the defendant?

No further questions your honor.

Direct Examination (Defense)

(after the witness is sworn in)

Could you please state your name for the record?

Thank you. Can you please tell the court where you were on the day in question?

Were you with anyone at that time?

Who were you with?

What were you doing?

Could you tell the court exactly what happened when you were participating in the research study?

And during this time, did you ever see the defendant take a wallet?

You were with the defendant the whole time you were in the room?

And at no time, did you witness the defendant take a wallet?

Thank you, I have no further questions your honor.

Cross-examination (Prosecution)

Traditional Cross

What would you say if I told you we have video surveillance footage that shows both you and the defendant standing near the bag?

Was the defendant standing near the bag with the wallet on it?

Were you standing next to the bag with the wallet on it?

So you both had the opportunity to take the wallet?

Which is correct, the defendant was standing ____________ or you and the defendant were standing by the bag?

Do you have reason to lie for the defendant?

No further questions, Your Honor

Research based Cross

Was the defendant standing near the bag with the wallet on it?

Were you standing next to the bag with the wallet on it?

So you both had the opportunity to take the wallet?

What would you say if I told you we have video surveillance footage that shows you and the defendant standing near the bag?

Which is correct, the defendant was standing ____________ or you and the defendant were standing by the bag?

Do you have reason to lie for the defendant?

No further questions your honor.

Witness post-testimony questionnaire

Please indicate your agreement with each of the follow statements from 1 (completely disagree) to 9 (completely agree).

1. I felt uncomfortable during the direct portion of my testimony (i.e., when your attorney was asking you questions about the event).

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

2. I **felt uncomfortable during the cross-examination (i.e., when the opposing attorney was questioning you about the event).**

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

3. I felt nervous during the direct portion of my testimony.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

4. I felt nervous during the cross-examination.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

5. I found the attorney's questions during the direct examination to be difficult to answer.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

6. I found the attorney's questions during the cross-examination to be difficult to answer.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

7. I found the attorney's questions during the direct examination to be easy to answer.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

8. I felt comfortable during the direct examination.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

9. I felt comfortable during the cross-examination.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

10. I felt like the attorney during direct examination was trying to trick me.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

11. I felt like the attorney during cross-examination was trying to trick me.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

12. During the direct examination, I was worried about whether people watching my testimony would believe me.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

13. During the cross-examination, I was worried about whether people watching my testimony would believe me.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

14. What did you do to make your testimony as credible as possible?

____

15. What did you do to make your *body language* (including facial expressions) as credible as possible?

16. I planned ahead of time what I wanted to say during the direct examination portion of my testimony (i.e., when your own attorney questioned you about the event).

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

17. I **planned ahead of time my body language (including facial expressions) during the direct portion of my testimony (i.e., when you own attorney questioned you about the event).**

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

18. I planned ahead of time what I wanted to say during the cross-examination portion of my testimony (i.e., when the opposing attorney questioned you about the event).

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

19. I planned ahead of time my body language (including facial expressions) during the cross-examination (i.e., when the opposing attorney questioned you about the event).

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

20. Did you have a strategy for the direct testimony? (choose “”yes or “no” and explain)

☐ Yes, the following:

____

____

____

____

____

☐ No, because:

____

____

____

____

____

11. Did you have a strategy for the cross-examination? (choose “yes” or “no” and explain)

☐ Yes, the following:

☐ No, because:

21. My testimony today was truthful.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

22. I lied during my testimony about whether I saw my partner steal the wallet.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

23. I wanted to be a credible witness.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

24. I didn't care whether the attorneys believed me.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

25. I was motivated to convince the attorneys that my story was true.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

26. It will be difficult for a person watching a videotape of my testimony to determine whether I was lying or telling the truth.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

27. Did you actually witness your partner in the study steal the wallet during the scavenger hunt (despite you may or may not have said during your testimony)?

☐ Yes

☐ No

28. What is your Age? ______________________

29. What is your Gender? (Circle one)

MALE FEMALE

30. What is your racial/ethnic background?

a) White, Non-Hispanic
b) Black, Non-Hispanic
c) Hispanic
d) Asian
e) Other

Attorney ratings of witness

Please indicate your agreement with the following statements.

1. This witness was truthful during their testimony.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

2. This witness lied during their testimony.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

3. This witness was nervous during their testimony.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

4. This witness was confident during their testimony.

1 2 3 4 5 6 7 8 9
Completely
Completely
Disagree
Agree

Trial Transcript

Judge's instructions

Members of the jury welcome, I am Judge Whitmore and I will be presiding at this trial. Before I continue, I want to thank you for being here. A trial by jury is, and has been, the cornerstone of our system of justice for more than 200 years. Under that system, members of the community, and not a government official, decide whether a person accused of a crime by the government is guilty or not guilty

The name of this case is the "people of the State of New York against David Welker. The defendant is charged with the crime of Criminal Possession of stolen property in the fifth degree At the end of the trial, I will give you detailed instructions on the crime charged and its is upon those instructions that you must base your decision.

The jury's responsibility is to evaluate fairly the testimony and other evidence presented at the trial, to apply the law to the fact, and to decide whether the People have proven the defendant guilty beyond a reasonable doubt. In your deliberations, you may not consider or speculate about matters relating to sentence or punishment. If there is a verdict of guilty, it will be my responsibility to impose an appropriate sentence.

When you judge the facts, you are to consider only the evidence. The evidence in this case includes testimony of witnesses.

We now turn to one of the fundamental principles of our law that apply in all criminal trials – the presumption of innocence.

Throughout these proceedings, the defendant is presumed to be innocent. As a result, you must find the defendant not guilty, unless, on the evidence presented at the trial, you conclude that the People have proven the defendant guilty beyond a reasonable doubt.

The people have the burden of proving beyond a reasonable doubt, not only that a crime was committed but that the defendant is the person who committed that crime. Thus even if you are convinced beyond a reasonable doubt that a charged crime was committed by someone, you cannot convict the defendant of that crime unless you are also convinced beyond a reasonable doubt that he is the person who committed that crime.

We will now hear opening statements from the attorneys representing the State and the defendant.

Prosecution
Ladies and Gentleman of the jury, Thank you for being here today. Let me begin by telling you the facts of this case. In the Spring semester of 2009, David Welker attended a research study held in the Psychology department of John Jay College of Criminal Justice. The research study he attended was examining how people work together to solve

problems, and as such, paired research participants together to solve a scavenger hunt. During the scavenger hunt, the participants had to work together to solve riddles or clues in order the find the items that were part of the scavenger hunt. The clues were contained in various items hidden in a room in which the scavenger hunt was held, including a CD case, a cup of change, a box of candles, and a wallet that belonged to the researcher conducting the study, Ms. Levine. Along the way, the participants were instructed to keep some items and to answer questions about some of the items on instructional sheets they were given to guide them through the scavenger hunt. After David Welker and his partner completed the scavenger hunt they returned to the room where the researcher was waiting for them. They her with the items they were instructed to bring and the answers on their instructional sheets. Ms. Levine awarded them credit for their participation in the study and allowed them to leave. When Ms. Levine returned to the scavenger hunt room to prepare for the next pair of participants, she found her wallet missing from the room. The wallet was not one of the items the participants were instructed to collect and bring to the researcher. The evidence we will present to you today will prove beyond a reasonable doubt that David Welker is the person responsible for stealing the wallet. Once we have provided the evidence against Mr. Welker today, you will see that the only possible verdict is guilty. Thank you.

Defense

Ladies and Gentleman of the jury, thank you for your service today. Your service today is critical to the workings of our justice system. Why? Because the law states that in order to find an individual guilty, the prosecution must prove beyond a reasonable doubt that the defendant is guilty of the charges against him. Your job today is to carefully and deliberately evaluate the evidence the state presents today and determine whether the state proves their case “beyond a reasonable doubt.” You will find Ladies and Gentleman of the jury that the State fails to meet this criteria. There is no conclusive evidence that my client is guilty of committing the theft that occurred. Remember as the judge instructed you today, it is not on the defendant to prove his innocence, it is up to the state to prove beyond a reasonable doubt that my client, David Welker is guilty. There is no real evidence against my client. Yes, my client was participating in the study that day, but there is no evidence that directly links him to the theft. There is no physical evidence that Mr. Welker took the wallet. They never found the wallet in his possession and have not recovered the wallet or its contents. You will see that in order to uphold justice in this case, the only option is to acquit my client of the charges against him and find him not guilty.

Judge: The Prosecution may now call their first witness.

Prosecution’s Case

<u>Sarah Levine (Researcher in charge of the study)</u>

Direct Examination

Prosecution: Thank you your honor. Can you please state your name for the court?

Levine: Sarah Levine

Prosecution: Thank you, Ms. Levine, Where were you on the day the theft took place?

Levine: I was conducting a research study at John Jay College

Prosecution: And on that day, did a Mr. David Welker attend the research study you were conducting?

Levine: Yes.

Prosecution: Can you please take us through the research study that Mr. Welker participated in?

Levine: Yes, the study requires pairs of participants to work together to solve a scavenger hunt. The participants were each given an instructional sheet that guided them through the hunt. They were given separate instructional sheets that made them responsible for different tasks and required them to share information and work together to complete the scavenger hunt. Sometimes they had to work independently, either to solve problems or to collect specific items that they were to return to me—they had to bring me a 1982 penny and a particular DVD. Sometimes they had to work together and share information. At the end of the hunt, the participants would bring their worksheet and the items they were instructed to collect to me, and I would check their answers and determine whether they had collected the correct items. Once they answered my questions, I would award them credit for their participation and they were allowed to leave.

Prosecution: And on this particular day, did the defendant and his partner successfully complete the scavenger hunt?

Levine: Yes, they answered all the items individually and together correctly and they had the 1982 penny and the correct DVD that they need to bring with them. I awarded them credit and allowed them to leave.

Prosecution: What did you do next?

Levine: I went back to the scavenger hunt room to prepare the room for the next pair of participants that were scheduled, and that's when I discovered the wallet was missing.

Prosecution: Was the wallet used in the scavenger hunt?

Levine: Yes, it was my wallet. I didn't think anything about using it, because I am in the next room and there are pairs of participants working together, so I use it as one of the items that contains clues. Usually there isn't anything much of value in the wallet. On that particular day, I had just cashed a check so there was a few hundred dollars in the wallet.

Prosecution: What did you do when you discovered the wallet was missing?

Levine: Well, first I searched the halls for the participants to ask them about the wallet. I was unable to find either participant, though, so I called the security desk to inform them of the theft. Security informed me I should file a report with the police.

Prosecution: And did you file a report with the police?

Levine: Yes, I did. They questioned me about the day and the study, and they told me they would investigate the theft.

Prosecution: Did you speak to the police after that?

Levine: Well, when I got back to school, I remember that the lab had recently installed a security camera. The security camera was aimed at the computer and file cabinet we use to store all the data we collect. We want to be sure our data is protected, so it is just aimed at that side of the room. The wallet was also hidden on that side of the room, though, so I brought the security camera to the precinct.

Prosecution: And did the police look at the footage?

Levine: When I brought the tapes, the officer working the desk told me that the officer assigned to my case was out interviewing witnesses and he would take a look at it when he returned.

Prosecution: And what happened after that?

Levine: A few days later the police called me and told me they had arrested Mr. Welker for the theft but they were unable to uncover the wallet

Prosecution: Thank you Ms. Levine. No further questions your honor.

Judge: Counsel your witness

Cross-examination

Defense: Thank you. Ms. Levine, when the participants came back to your room, did you notice anything suspicious?

Levine: No everything seemed normal

Defense: When you returned to the scavenger hunt room, was there anyone else there?

Levine: No, it was just me.

Defense: Was anyone else in the room from the time that the scavenger hunt ended and the time you came back to the room?

Levine: Not that I am aware of.

Defense: Does anyone else have access to the room?

Levine: Well, yes, other researchers have access to the room.

Defense: Isn't it possible someone else could have entered the room in the time in between when the participants left the room and you came back and that person could have taken the wallet?

Levine: I suppose, but I didn't see anyone else in the hallways where I was waiting and where they scavenger hunt room is.

Defense: You were still conducting the study with the participants afterwards though, checking their answers and awarding them credit, weren't you?

Levine: Yes

Defense; Is it possible you were distracted and did not see another person walk in?

Levine: Yes, I suppose so.

Defense: You testified that the security cameras are only positioned to capture the side of the room w/ the locked filing cabinet to protect the data that is held in the room, correct?

Levine: Yes

Defense: So, is it possible that the wallet was placed on the other side of the room after the scavenger hunt and someone entered the room and took the wallet without being on the security cameras?

Levine: It's possible, but. . .

Defense: Thank you, no further questions, your honor

Judge: Counsel, please call your next witness

<u>Expert</u> (Either Prosecution or Defense will Direct examine witness, depending on condition – half of the time will testify for Defense, half Prosecution)

Direct Examiner: Please state your name for the record

Expert: Stan Fisher

Direct Examiner: Mr. Fisher, what is your area of employment?

Expert   I see and install security cameras

Direct Examiner: Thank you. Mr. Fisher, did you examine the security cameras installed in the research lab at John Jay College where the scavenger hunt study took place?

Expert: Yes, I did.

Direct Examiner: Can you please describe the camera and its capabilities, please?

Expert   Yes, the camera is a T900. It was mounted in the top northwest corner of the room and was aimed at the opposite wall where a filing cabinet and computer are located that contain the researchers' data and files that need to be protected.

Direct Examiner: So, the angle of the cameras is such that it is aimed downward at the equipment

Expert   Yes

Direct Examiner: What are the capabilities of the particular model of camera?

Expert   The camera displays images in black and white. The resolution of the camera is about 480 lines of resolution, which is standard in security cameras.

Direct Examiner: How much coverage of the area does the camera capture?

Expert   Well, the lens width is on the lower sides, about 2 mm. This means there was greater coverage of the area, which allowed the cameras to capture all of the equipment and filing cabinets located on that wall. More coverage, however, means less telephoto capabilities, so the details captured by the camera is less than that of a camera with a wider lens width. The camera also works in what is called low lux, meaning the camera will still capture images in relatively low lighting.

Direct Examiner: Thank you, no further questions, Your Honor.

Cross-examination

Cross-Examiner: So, the camera is basically able to accurately capture the image of two people standing in front of the equipment?

Expert: Yes, you would be able to see that

Cross-Examiner: Isn't it possible that with the cameras inability to capture as much detail it would difficult to accurately see slight movements?

Expert Well, yes, depending on there a person was standing, and the angle of the camera, you may not be able to see much detail at all.

Cross-Examiner: Thank you, no further questions your honor.

Judge: Please call your next Witness

<u>Police Officer</u>

Direct Examination

Prosecution: Please state your name for the record

Green: William Green

Prosecution: Thank you Officer Green, were you the officer in charge of investigating this theft?

Green: Yes, I took the statement from Ms. Levine and I followed up with an investigation.

Prosecution: And what did you do investigate?

Green: After taking the victim's statement we did several things to investigate. First, we contacted both of the witnesses and interviewed them.

Prosecution: Who did you contact first?

Green: We contacted the defendant, Mr. Welker.

Prosecution: And what did you learn from you initial interview?

Green: He denied having any knowledge of the theft

Prosecution: And did you also interview Mr. Welker's partner during the scavenger hunt?

Yes, Mr. Welker's partner also claimed to have no knowledge of the theft

Yes, Mr. Welker's partner claimed to have seen him take the wallet during the course scavenger hunt. According to my notes, because the participants had separate instructions, Mr. Welker's partner did not know he was not supposed to keep the wallet, but they stated that they did see him take it.

Prosecution: Ok. What did you do after interviewing the witnesses?

Green: Well, the researcher brought in a security camera tape while I was out interviewing the witnesses. She remembered that security cameras had been installed in the lab a while back to protect the researchers' data and so she thought maybe we would get something from that.

Prosecution: Did you look at the security tapes?

Green: Yes, I did

Prosecution: And what did the security cameras show?

Green: Well, the angle of the camera was such that you were able to see Mr. Welker, the defendant, pick up the wallet, open it, and read the clue inside the wallet. However, after that, the defendant turned his back to the camera. You can see his arms moving in front of his body and then the participants walk away from the camera, toward the other side of the room, which the security cameras do not capture.

Prosecution: Was the wallet on the cabinet after they walked away?

Green: There were many other items on the cabinet blocking view of where the wallet had been, so we were unable to determine for sure, but the wallet did not appear to be there.

Prosecution: What did you do after viewing the video surveillance?

Green: We obtained a warrant to search the defendant, his home, and his vehicle, and conducted a search.

Prosecution: Did the search produce any evidence?

Green: We were unable to find the wallet.

Prosecution: What happened after you searched the premises?

Green: Based upon the video surveillance footage that made it appear that the defendant took the wallet and that the defendant was the last person seen with the wallet, we placed the defendant under arrest.

Prosecution: Thank you, no further questions

Cross-examination

Defense: Thank you. Officer Green, so you testified that during your search, you searched the defendant?

Green: Yes

Defense: And you searched his home?

Green: Yes

Defense: And you searched his vehicle

Green: Yes,

Defense: And you were unable to find the wallet or any physical evidence on the defendant, in the defendant's apartment, or in the defendant's vehicle?

Green: Yes, but

Defense: Just answer the question, Office Green.

Green: Yes, we were unable to find the wallet.

Defense: Thank you. No further questions, your honor.

Closing Statements

Defense

Ladies and Gentleman of the jury. You have heard the evidence and now you know that the Prosecution failed to prove that my client is responsible for the theft. It was the State's burden to prove guilt beyond a reasonable doubt, and the state failed to meet that standard. We can even see why the State hastily charged my client with the theft. He was there the day of the theft and the state says they have evidence in the security tapes. But, the tapes do not conclusively show anything that proves my client is guilty, and they were unable to recover the wallet when they searched my client's belongings.

{The State call called my client's partner during the scavenger hunt, who testified that they saw my client take the wallet. But the very security camera the Prosecution provided as evidence shows that witness standing next to the wallet too, with the same opportunity to take the wallet that my client had. The security camera is evidence of that opportunity.}

{The State called my client's partner during the scavenger hunt. That eyewitness to the events of the day testified that my client did not take the wallet, yet other evidence that my client is innocent}

The state failed to provide any physical evidence linking my client to this crime. Therefore, you must do your duty and find my client, David Welker, not guilty. Thank you.

Prosecution

Ladies and Gentleman of the jury, on the day that Mr. Welker came to the college to participate in an experiment, Ms. Levine went about preparing for the study as she had many times before, including placing her wallet, which contained a clue to the scavenger hunt, in the lab for her participants to find. During this particular study, however, the defendant, Mr. David Welker took advantage of Ms. Levine's good faith in the students and took the wallet and its contents for himself. He had the opportunity to steal the wallet and he took it. We have security camera footage showing the defendant as the last person with the wallet, footage that shows the defendant turning away and doing something with the wallet and then we do not see the wallet on camera anymore. We heard testimony from the researcher that Mr. Welker and his partner were the last people known to be in the room from which the wallet was taken.

{And we have testimony from Mr. Welker's partner they witnessed him taking the wallet after reading the clue}

{And although Mr. Welker's partner testified did not testify that Mr. Welker took the wallet, this does not mean he did not take it. The participants were busy and distracted finding other items and solving clues and could not have seen everything their partners were doing..}

What we know for certain is that Mr. Welker was the last person with the wallet. He had the opportunity to take that wallet and he used that opportunity for his own advantage. Ladies and gentlemen of the jury, you must find the defendant, guilty of the charges against him.

Judge's Instructions

Members of the jury, I will now instruct you on the law. When you judge the fact you are to consider only the evidence. The evidence in the case includes the testimony of the witnesses. In evaluating the evidence, you may consider any fact that is proven and any inference which may be drawn from such fact. To draw an inference means to infer, find, or conclude that a fact exists or does not exist based upon proof of some other fact or facts. An inference must only be drawn from a proven fact or facts and then only if the inference flows naturally, reasonably and logically from the proven fact or fact, not if it is speculative. Therefore, in deciding whether to draw an inference, you must look at and consider all the facts in the light of reason, common sense, and experience.

We now turn to the fundamental principles of our law that apply in all criminal trials – the presumption of innocence, the burden of proof, and the requirement of proof beyond a reasonable doubt. Through out these proceedings, the defendant is presumed to be innocent. As a result, you must find the defendant not guilty, unless, on the evidence presented at this trial, you conclude that the People have proven the defendant guilty beyond a reasonable doubt.

In determining whether the People have satisfied their burden of proving the defendant guilty beyond a reasonable doubt, you may consider all the evidence presented whether by the People or by the defendant. In doing so, however, remember that even though the defendant introduced the evidence, the burden of proof remains on the People.

The fact that the defendant did not testify is not a factor from which any inference unfavorable to the defendant may be drawn.

The defendant is not required to prove that he is not guilty. In fact, the defendant is not required to prove or disprove anything. To the contrary, the People have the burden of proving the defendant guilty beyond a reasonable doubt. That means, before you can find the defendant guilty of a crime the People must prove beyond a reasonable doubt every element of the crime including that the defendant is the person who committed that crime. The burden of proof never shifts from the People to the defendant. If the people fail to satisfy their burden of proof, you must find the defendant not guilty. If the People satisfy their burden of proof, you must find the defendant guilty.

What does our law mean when it requires proof of guilty beyond a reasonable doubt?

The law uses the term, proof beyond a reasonable doubt to tell you how convincing the evidence of guilty must be to permit a verdict of guilty. The law recognizes that, in dealing with human affairs, there are very few things in this world that we know with absolute certainty. Therefore, the law does not require the People to prove a defendant guilty beyond all possible doubt. On the other hand, it is not sufficient to prove that the defendant is probably guilty. In a criminal case, the proof of guilty must be stronger than that. It must be beyond a reasonable doubt.

A reasonable doubt is an honest doubt of the defendant's guilt for which a reason exists based upon the nature and quality of the evidence. It is an actual doubt, not an imaginary doubt. It is a doubt that a reasonable person, acting in a matter of this importance, would be likely to entertain because of the evidence that was presented or because of the lack of convincing evidence.

Proof of guilty beyond a reasonable doubt is proof that leaves you so firmly convinced of the defendant's guilty that you have to reasonable doubt of the existence of any element of the crime or of the defendant's identity as the person who committed the crime. I will instruct you further on this subject at the end of the trial.

In determining whether or not the People have proven the defendant's guilt beyond a reasonable doubt, you should be guided solely by a full and fair evaluation of the evidence. After carefully evaluating the evidence, each of you must decide whether or not that evidence convinces you beyond a reasonable doubt of the defendant's guilt. Whatever your verdict may be, it must not rest upon baseless speculations. If you are not convinced beyond a reasonable doubt that the defendant is guilty of a charged crime, you must find the defendant not guilty of that crime. If you are convinced beyond a reasonable doubt that the defendant is guilty of a charge crime, you must find the defendant guilty of that crime.

As judges of the facts, you alone determine the truthfulness and accuracy of the testimony of each witness. You must decide whether a witness told the truth and was accurate or instead testified falsely or was mistaken. You must also decide what importance to give to the testimony you accept as truthful and accurate. It is the quality of the testimony, not he number of witnesses who testify

If you find that any witness has intentionally testified falsely to any material fact, you may disregard that witness's entire testimony. Or you may disregard so much of it as you find was untruthful and accept so much of it as you find to have been truthful and accurate.

There is no particular formula for evaluating the truthfulness and accuracy of another person's statements or testimony. You bring to this process all of your varied experiences. In life, you frequently decide the truthfulness and accuracy of statements made to you by other people. The same factors used to make those decisions, should be used in this case when evaluating the testimony.

Some of the factors that you may wish to consider in evaluating the testimony of a witness are as follows:

Did the witness have an opportunity to see or hear the events about which he or she testified?

Did the witness have the ability to recall those events accurately?

Was the testimony of the witness plausible and likely to be true, or was it implausible and not likely to be true?

Was the testimony of the witness consistent or inconsistent with other testimony or evidence I the case?

Did the manner in which the witness testified reflect upon the truthfulness of that witness's testimony?

You may consider whether a witness had or did not have a motive to lie. If a witness had a motive to lie, you may consider whether and to what extent, if any, that motive affected the truthfulness of that witness's testimony. If a witness did not have a motive to lie, you may consider that as well in evaluating the witness's truthfulness

You may consider whether a witness's testimony is consistent with the testimony of other witnesses or with other evidence in the case. If there were inconsistencies by or about witnesses, you may consider whether they were significant inconsistencies related to important facts, or instead were the kind of minor inconsistencies that one might expect from multiples witnesses to the same event

In this case you have heard the testimony of a police officer. The testimony of a witness should not be believed solely an simply because the witness is a police officer. At the same time, a witness's testimony should not be disbelieved solely and simply because the witness is a police officer. You must evaluate a police officer's testimony in the same way you would evaluate the testimony of any other witness.

I will now instruct you on the law applicable to the charged offense. The defendant, David Welker, has been charged with Criminal Possession of Stolen Property in the Fifth Degree. Under our law, a person is guilty of Criminal Possession of Stolen Property in the Fifth Degree when that person knowingly possesses stolen property, with intent to benefit himself or herself or a person other than an owner thereof or to impede the recovery by an owner thereof. Some of the terms used in this definition have their own special meaning in our law. I will now give you the meaning of the following terms: "knowingly," "possess," "property," "stolen property," "intent," and "owner".

A person knowingly possesses stolen property when that person is aware that he or she is in possession of property and is aware that such property is stolen. Possess means to have physical possession or otherwise to exercise dominion and control over tangible property. Property means any money, personal property or thing of value. Stolen property is property that has been wrongfully taken, obtained, or withheld from an owner by a person who did so with the intent to deprive another of such property or to appropriate such property to himself or herself or a third person. Intent means conscious objective or purpose. Thus, a person acts with intent to benefit himself or herself or a person other than an owner of property or to impede the recovery of property by an owner when that person's conscious objective or purpose is to do so. Under our law, a person who knowingly possesses stolen property is presumed to possess it with the intent to benefit himself or herself or a person other than an owner thereof or to impede its recovery by an owner thereof. This means that, if the People have proven beyond a reasonable doubt that the defendant knowingly possessed stolen property, you may, but you are not required to, infer from that fact that the defendant possessed it with the intent to benefit himself/herself or a person other than an owner thereof or to impede its recovery by an owner thereof.

That concludes my instructions on the law.

Post Trial Questionnaire

Part A: Please read and answer each question.

1. The defendant has been charged with **theft in the fifth degree**. How do you find the defendant? **(Circle one)**

GUILTY NOT GUILTY

2. How confident are you in your verdict?

0%--5—10—15—20—25—30—35-40-45-50%-55-60—65—70—75—80—85—90—95—100%

3. What is the probability the defendant committed the theft?

0%--5—10—15—20—25—30—35-40-45-50%-55-60—65—70—75—80—85—90—95—100%

Part B: Please describe your impressions of the testimony that you witnessed. In particular, please rate each witness using a series of adjective pairs. The scales are designed so that you can express the degree to which the person that you are rating seems to fit one end of the scale or the other. Which space you check should depend on the degree to which the word describes the person you are rating. For example, if you thought that Jane was *slightly* tall, you would mark the item as follows:

Tall			X					Short

However, if you thought that Jane was *extremely* short, you should place the "X" next to short:

Tall							X	Short

Based on the testimony that you saw, carefully rate your impressions of ***the eyewitness (the defendant's partner in the research study)*** as best you can on each of the following dimensions:

Dishonest										Honest
Nervous										Calm
Pleasant										Hostile
Unlikable										Likable
Trustworthy										Untrustworthy
Sincere										Insincere
Not believable										Believable
Convincing										Unconvincing
Certain										Uncertain
Evasive										Forthcoming

Part C Please indicate your level of agreement on each of the following statements regarding the eyewitness's (the defendant's partner):

1. The eyewitness's answers during direct testimony were truthful.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

2. The eyewitness's answers during cross-examination were truthful.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

3. The eyewitness's answers during the direct examination were detailed.

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

4. The eyewitness's answers during cross-examination were detailed.

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

5. The eyewitness's answers during the direct examination were vague.

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

6. The eyewitness's answers during cross-examination were vague.

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

7. The eyewitness's testimony was consistent with the rest of the evidence presented during trial.

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

Part D: Based on the testimony that you saw, carefully rate your impressions of ***researcher*** as best you can on each of the following dimensions:

Dishonest										Honest
Nervous										Calm
Pleasant										Hostile
Unlikable										Likable
Trustworthy										Untrustworthy
Sincere										Insincere
Not believable										Believable
Convincing										Unconvincing
Certain										Uncertain
Evasive										Forthcoming

Part E Please indicate your level of agreement on each of the following statements regarding ***the Researcher's*** testimony.

15. The Researcher's answers during direct testimony were truthful.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

16. The Researcher's answers during cross-examination were truthful.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

17. The Researcher's answers during the direct examination were detailed.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

18. The Researcher's answers during cross-examination were detailed.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

19. Researcher's answers during the direct examination were vague.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

20. The Researcher's answers during cross-examination were vague.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

21. The Researcher's testimony was consistent with the rest of the evidence presented during trial.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

Part F: Based on the testimony that you saw, carefully rate your impressions of ***the police officer's*** as best you can on each of the following dimensions:

Dishonest										Honest
Nervous										Calm
Pleasant										Hostile
Unlikable										Likable
Trustworthy										Untrustworthy
Sincere										Insincere
Not believable										Believable
Convincing										Unconvincing
Certain										Uncertain
Evasive										Forthcoming

Part G: Please indicate your level of agreement on each of the following statements regarding ***The Police Officer's*** testimony.

1. The police officer's answers during direct testimony were truthful.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

2. The police officer’s answers during cross-examination were truthful.

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

3. The police officer’s answers during the direct examination were detailed.

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

4. The police officer’s answers during cross-examination were detailed.

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

5. The police officer’s answers during the direct examination were vague.

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

6. The police officer’s answers during cross-examination were vague.

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

7. The police officer’s testimony was consistent

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

Part H: Based on the testimony that you saw, carefully rate your impressions of ***the security camera expert*** as best you can on each of the following dimensions:

Dishonest										Honest
Nervous										Calm
Pleasant										Hostile
Unlikable										Likable
Trustworthy										Untrustworthy
Sincere										Insincere
Not believable										Believable
Convincing										Unconvincing
Certain										Uncertain
Evasive										Forthcoming

Part I: Please indicate your level of agreement on each of the following statements regarding the ***Security Camera Expert's*** testimony.

1. The security camera expert's answers during direct testimony were truthful.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

2. The security camera expert's during cross-examination were truthful.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

3. The security camera expert's answers during the direct examination were detailed.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

4. The security camera expert's answers during cross-examination were detailed.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

5. The security camera expert's answers during the direct examination were vague.

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

6. The security camera expert's answers during cross-examination were vague.

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

7. The security camera expert's testimony was consistent

1	2	3	4	5	6	7	8	9
Completely Disagree								Completely Agree

Part J: Based on the testimony that you saw, carefully rate your impressions of ***the prosecuting attorney*** as best you can on each of the following dimensions:

Dishonest									Honest
Nervous									Calm
Pleasant									Hostile
Unlikable									Likable
Trustworthy									Untrustworthy
Sincere									Insincere
Not believable									Believable
Convincing									Unconvincing
Certain									Uncertain
Evasive									Forthcoming

Part K: Based on the testimony that you saw, carefully rate your impressions of ***the defense attorney*** as best you can on each of the following dimensions:

Dishonest										Honest
Nervous										Calm
Pleasant										Hostile
Unlikable										Likable
Trustworthy										Untrustworthy
Sincere										Insincere
Not believable										Believable
Convincing										Unconvincing
Certain										Uncertain
Evasive										Forthcoming

Part L: Please indicate your agreement with each of the following statements.

1. The defense's case was strong.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

2. The prosecution's case was strong.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

3. The evidence against the defendant in this case was weak.

1 2 3 4 5 6 7 8 9
Completely Disagree — Completely Agree

4. The eyewitness evidence (the defendant's partner's testimony) was strong.

1 2 3 4 5 6 7 8 9
Completely

5. The physical evidence against the defendant was strong.

1	2	3	4	5	6	7	8	9
Completely Agree								Completely Disagree

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