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IRVINE

Jurors' Perceptions of the Probative Value of Non-Identifications

DISSERTATION

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DOCTOR OF PHILOSOPHY

in Psychological Science

by

Jennifer Teitcher

Dissertation Committee:  
Associate Professor Nicholas Scurich, Chair  
Distinguished Professor Elizabeth Loftus  
Professor Linda Levine  
Assistant Professor J. Zoe Klemfuss  
Professor Mona Lynch

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In Jewish learning, when one finishes a volume of the Talmud, a prayer known as the *Hadran*—meaning "*return*"—is traditionally recited. The prayer declares the student's intention to return to the subject matter, despite completing it, to develop new insight into and glean new understandings from the material. The process of learning is unending; even familiar and well-established literature yields new understanding and ideas. As I submit this dissertation, I hope to *hadran*—to return—to this material and find more to learn about this incredibly interesting topic and field.

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## VITA

### Jennifer Teitcher

#### **Education**

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<b>University of California, Irvine, Irvine, CA</b>	2015-2020
PhD Psychological Science	2020
MA Social Ecology	2017
 <b>University of Pennsylvania, Philadelphia, PA</b>	 2007-2011
BA Criminology, <i>magna cum laude</i>	
Minors: Psychology; Music	

**Research Interests:** Judgment & Decision Making; Memory Errors; Psychology & Law  
*Working under the advisement of Dr. Nicholas Scurich and Dr. Elizabeth Loftus*

#### **Publications**

---

Shaw EV, Gongola J, **Teitcher J**, & Scurich N (2019). The probative value of emotional affect in homicide investigations. In R Bull & I Blandon-Gitlin, *The Routledge International Handbook of legal and investigative psychology* (pp. 70-83). New York, NY: Routledge Taylor & Francis Group.

Loftus EF, & **Teitcher J** (2019). Invasion of the mind snatchers: A nation full of traumatic memories. *Clinical Psychological Science*, 7(1), 25-26.

**Teitcher J**, & Scurich N (2017). On informing jurors of potential sanctions. *Law & Human Behavior*. 41(6), 579-587.

**Teitcher JEF**, Bockting WO, Bauermeister JA, Hoefler CJ, Miner MH, & Klitzman RL (2015). Detecting, preventing, and responding to “fraudsters” in internet research: Ethics and tradeoffs. *Journal of Law, Medicine, & Ethics*, 43(1), 116-133.

Hanrahan D, Sexton P, Hui K, **Teitcher J**, Sugarman J, London AJ, Barnes M, Purpura J, & Klitzman R (2015). Linguistic and cultural challenges in communication and translation in US-sponsored HIV prevention research in emerging economies. *PloS one*, 10(7), e0133394.

#### **Paper Presentations**

---

**Teitcher J** & Scurich N (March, 2020). Do jurors use non-identifications appropriately?  
*American Psychology-Law Society Annual Conference*, New Orleans, LA

**Teitcher J** & Scurich N (March, 2019). Jurors’ perceptions of the probative value of non-identifications. (Data-Blitz Paper Presentation) *American Psychology-Law Society Annual Conference*, Portland OR

**Teitcher J** (February, 2019). Non-Identifications. *Center for Psychology and Law Graduate*

*Student Colloquium, Irvine, CA*

**Teitcher J** & Scurich N (December, 2018). Jurors' perceptions of the probative value of non-identifications. *Israeli Law and Economics Association Annual Conference, Jerusalem, Israel* [IN PRESENCE OF A SITTING ISRAELI SUPREME COURT JUSTICE]

**Teitcher J** (May, 2017). On informing jurors of potential sanctions. *UCI Psychology and Social Behavior Colloquium Series, Irvine, CA*

**Teitcher J** & Scurich N (February, 2017). Criminal punishment – Are jurors “under the influence?” *55<sup>th</sup> Annual Edwards Bayesian Conference, Fullerton, CA*

### **Poster Presentations**

---

**Teitcher J**, & Scurich N (October, 2018). Jurors' perceptions of the probative value of non-identifications [THIRD PLACE WINNER] *Distinguished Fellows Reception at the Center of Psychology and Law, Irvine, CA*

**Teitcher J**, & Scurich N (May, 2018). Jurors' perceptions of the probative value of non-identifications. *Association of Psychological Science 30<sup>th</sup> Annual Convention, San Francisco, CA*

Arun V, Rodriguez K, **Teitcher J**, Greenspan R, & Loftus EF (May, 2018). The role of implicit and explicit biases in the misinformation effect. *UCI Undergraduate Research Opportunities Program Symposium, Irvine, CA*

Despodova N, Perillo J, Clatch L, **Teitcher J**, & Kovera MB (March, 2015). Effects of adversarial allegiance influence on the quality of reasoning displayed in expert evaluations. *American Psychology-Law Society Annual Conference, San Diego, CA*

### **Guest Lectures**

---

**Teitcher J** (March, 2019) Professional Issues and Current Trends. *Child Health Development undergraduate course, Irvine, CA*

**Teitcher J** (November, 2018). What About Non-Identifications? *Psychology and the Law undergraduate course, Irvine, CA*

**Teitcher J** (January, 2017). Eyewitness Factors *Eyewitness Testimony undergraduate course, Irvine, CA*

### **Graduate Awards, Grants, & Fellowships**

---

Dissertation Grant (\$1000); <i>UCI Center for Psychology and Law</i>	2020
AP-LS 2020 Travel Grant (\$500); <i>UCI Center for Psychology and Law</i>	2020
AGS Winter 2019 Travel Grant (\$400); <i>UCI Associated Graduate Students</i>	2019
AP-LS 2019 Travel Grant (\$300); <i>UCI Center for Psychology and Law</i>	2019

Third Place Poster (\$100); *UCI Center for Psychology and Law Distinguished Fellows Reception* 2018

Graduate Dean's Recruitment Fellowship (\$5,000); *University of California, Irvine* 2015

### **Graduate Research Assistant Experience**

**C-SAFE (Center for Statistics & Applications in Forensic Science)**, University of California, Irvine 2019-2020

- Designed and conducted experiments on how jurors understand and use forensic evidence to subsequently present findings to government agencies and national conferences

**Dr. Ray Novaco**, University of California, Irvine 2016-2017

- Researched other universities' curriculum and assisted in developing a new clinical psychology program in preparation to present to dean and administration for approval

### **Teaching Experience**

Teaching Assistantship, University of California, Irvine 2015-2019

Department of Psychological Science

Department of Criminology, Law, & Society

Master of Legal and Forensic Psychology Program

### **Media**

Chaudry R, Miller C, & Simpson S (Producers). (2019, August 5) *Undisclosed: The Strahan effect* [Audio podcast]. Retrieved from <https://undisclosed-podcast.com/episodes/state-v-joseph-webster/episode-2-the-strahan-effect/>

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### **Affiliations**

American Psychological Association

American Psychology-Law Society

Association for Psychological Science

UC Irvine, Center for Psychology and Law

## ABSTRACT OF THE DISSERTATION

Jurors' Perceptions of the Probative Value of Non-Identifications

By

Jennifer Teitcher

Doctor of Philosophy in Psychology and Social Behavior

University of California, Irvine

Associate Professor Nicholas Scurich, Chair

There is considerable evidence that jurors attribute significant weight to testimony in which an eyewitness makes a positive identification. By contrast, little empirical research has been conducted on how jurors perceive non-identifications, which is when an eyewitness affirmatively states that the defendant is *not* the perpetrator. Using a mock juror paradigm, three experiments tested whether jurors are sensitive to non-identification testimony by recruiting participants through Amazon Mechanical Turk. Participants in Study 1 ( $N = 163$ ) read a court case where the eyewitness identification evidence was manipulated (positive identification vs. non-identification vs. no eyewitness identification evidence). Participants were no more likely to acquit the defendant when presented with non-identification testimony compared to a case that had no eyewitness testimony at all. Study 2 tested one possible explanation for why mock jurors gave no apparent weight to the non-identification: because there was no explanation or elaboration for the non-identification. In Study 2, participants ( $N = 220$ ) read the same court case and all received non-identification testimony, but the reason surrounding a non-identification decision was manipulated: uninformative explanation (“I know what I saw and I know it’s not the guy”) or informative explanation (“the man I saw had blonde hair and everyone in the lineup

had brown hair”) or no explanation provided. The data revealed that an informative explanation reduced conviction rates by half compared to the other conditions, suggesting that jurors have difficulty utilizing the non-identification evidence, unless it is accompanied by an informative explanation.

Study 3 ( $N = 642$ ) tested the possibility that how jurors evaluate a non-identification is contingent upon how it relates to other evidence in the case as a whole. Based on the phenomena of *confirmation bias*, it was hypothesized that jurors will accord the non-identification testimony little weight when the case evidence is strong (hence the non-identification is inconsistent with the other case evidence) and relatively more weight when the case evidence is weak (hence the non-identification is consistent with the other case evidence). Study 3 manipulated the strength of the case (strong vs. moderate vs. weak) and the type of eyewitness testimony (positive identification vs. non-identification). In addition to the eyewitness testimony, an expert witness testified about the probative value of the eyewitness identification/non-identification to provide a normative benchmark against which to compare jurors’ responses. The data revealed that jurors engage in confirmation bias in the direction hypothesized, whereby the positive identification was accorded more weight when the other case evidence was strong compared to weak, and a non-identification was accorded more weight when the other case evidence was weak relative to strong. The fact that jurors’ evaluation of the eyewitness identification—regardless of type—depended on unrelated case evidence (e.g., repaying a debt to his credit card company) is non-normative.

Taken as a whole, these studies suggest that mock jurors do not intuitively ascribe much value to non-identifications, though they do so when there is an elaborate and plausible

explanation for the non-identification and if the other case evidence is weak. Directions for future research and implications of these findings for policy are discussed.

## **CHAPTER 1: EYEWITNESS IDENTIFICATION**

### **History**

Eyewitness testimony is regarded as one of the most influential pieces of evidence presented to a jury in a courtroom (Cutler & Penrod, 1999). For centuries, our legal system has relied on eyewitnesses to identify suspects and/or recall details from criminal events. Considering that a bystander would often not have any incentive to lie, police, lawyers, and triers of fact typically regard the eyewitness as being truthful and accord their testimony great weight.

However, this perspective has recently changed following the work conducted by the Innocence Project, a national organization dedicated to exonerating wrongfully convicted people through DNA testing (2019). Since its founding in 1992, it has used DNA evidence to exonerate over 300 wrongfully convicted people. In more than 70 percent of these convictions, faulty eyewitness identification played a significant role. DNA has demonstrated that eyewitnesses' memories and identifications can be flawed, and it has forced the legal system to take notice of this grave problem and issue reforms to reduce the number of wrongful convictions from faulty eyewitness identifications.

Although it took the justice system a while to fully understand the fallibility of memory, some have been questioning the validity of eyewitness accounts for decades. As early as 1900, Alfred Binet argued that suggestive questioning could influence responses. Additionally, in the early 1900s Hugo Munsterberg suggested that eyewitnesses could make mistakes, memory errors can occur, witnesses' confidence does not imply accuracy, and the legal system cannot distinguish between mistakes and truth (see Wells, Memon, Penrod, 2006). However, it was not until the 1970s that eyewitness identification became well established with empirical studies from Elizabeth Loftus, Robert Buckhout, and Gary Wells. Loftus demonstrated that memory was

susceptible to misinformation and that people's memories are malleable (Loftus, Miller, & Burns, 1978). Buckhout conducted a large experiment by getting a television station in New York City to broadcast a staged crime and six-person lineup, and over 90% of the 2000 participants who called in incorrectly identified the suspect (see Loftus, 1996).

Wells identified two separate categories of variables where eyewitness errors could emerge: *estimator variables* and *system variables* (Wells, 1978). Estimator variables are factors that are not under anyone's control (e.g., the lighting at the scene, the stress experienced while witnessing the event, or the race of the witness and suspect). On the other hand, system variables are factors that the justice system can control, such as interview techniques or instructions presented to the eyewitness before making an identification. Over the last four decades, research examining different variables within this framework has received much attention (Kassin, Tubb, Hosch, & Memon, 2001; Wells, Memon, & Penrod, 2006). These variables are outlined below.

### **Variables that Impact Eyewitness Identification**

#### **Estimator Variables**

It is important to study and understand estimator variables, even if these are factors beyond our control, because it is necessary to know what conditions increase the susceptibility to make faulty eyewitness identifications. Understanding these factors will help assess the reliability of the eyewitness and how much weight the account should be given as the case progresses through the justice system. Secondly, system variables are dependent upon estimator variables; the system variables are only as good as the memory of the eyewitness, and these memories are impacted by the estimator variables.

**Cross race.** Research on cross-racial identifications has shown that people are better at recognizing faces of strangers of their own race than the faces of strangers of a different race.



Meissner and Brigham (2001) reviewed this research and found that the likelihood of a mistaken identification is 1.56 times greater in a cross-race identification than in a same-race identification, and the likelihood of a correct identification was 1.40 times greater for a same-race identification than a cross-race identification. The cross-race effect has appeared globally among many different races, and does not differ across age groups (Loftus, 1996).

**Stress.** A meta-analysis by Deffenbacher (2004) found that high levels of stress impacted identification and detail accuracy. These studies have used many ways to induce stress in participants, including the use of violent and non-violent videos. For instance, in Clifford & Scott (1978), participants who watched a simulated videotaped attack (compared to a less stressful video) remembered fewer details about the event. Clifford and Hollin (1981) also randomly assigned participants to either watch a violent or non-violent video and found that participants' memories were worse in the violent condition, particularly as the number of perpetrators in the violent video increased.

These effects were also shown in a study by Morgan and colleagues (2004) that examined the identification accuracy of military personnel undergoing a prisoner-of-war training, a more real-world scenario. Five hundred active-duty military personnel enrolled in a survival school program were confined in a mock prisoner-of-war camp for 12 hours and then were given both a high-stress (and physical confrontation) and low-stress interrogation for 40 minutes each. A day after they were released from the program (where they could eat and sleep), they were asked to identify the interrogator in the lineup. Those who were asked to identify the high-stress interrogator were significantly less likely to correctly identify him a day after the training.

**Weapon focus.** Weapon focus refers to when a witness to a crime hones their attention to the weapon that the perpetrator is holding and, therefore, does not pay attention to other details at

the scene, including the face of the perpetrator (as well as physical features and/or his clothing). A common explanation is that a weapon at the scene increases anxiety or fear, and this level of arousal interferes with information processing. Studies have shown that when a weapon is present at the crime, eyewitnesses are less likely to accurately identify the suspect (Stebly, 1992). On the other hand, other research has shown that the novelty of a surprising object, not just a weapon, may be the underlying cause of the phenomenon, and fear and anxiety is not needed (see Wells, Memon, & Penrod, 2006; Wells, 2012). Fawcett and colleagues' (2013) meta-analysis examining weapon focus found that there is a greater weapon focus effect when there is increased arousal or threat, but that both theories listed above (i.e., increased arousal and the novelty of the item) have empirical support and are not mutually exclusive.

**Time: Exposure duration and retention interval.** A meta-analysis by Shapiro and Penrod (1986) reviewed how the amount of time the eyewitness has to view the perpetrator impacts identification accuracy. More frequent encounters (i.e., more time to see the suspect) increase identification accuracy, and longer delays between the crime and the identification not only decreased correct identifications, but also increased false identifications.

Two observations related to exposure duration are surprising. First, although seeing the perpetrator for a shorter duration decreases identification accuracy, eyewitnesses are still just as likely to pick someone out of a lineup (Wells & Murray, 1983). Second, it is often difficult to reliably determine the eyewitness's opportunity to view the suspect during the crime, because one must rely on the eyewitness whose judgment is being called into question. For example, eyewitnesses tend to overestimate the time of an event (Loftus, 1996), particularly when stressed or anxious. Therefore, if the eyewitness claims to have seen the perpetrator for a few minutes, it may not have been for that long, which impacts the accuracy of the identification.

**View: Distance and lighting.** Relatedly, the viewing conditions under which one sees the culprit can impact the likelihood of an accurate identification. Increasing the distance between the eyewitness and the perpetrator has shown to decrease the likelihood of an accurate identification (Lampinen, Erickson, Moore, & Hittson, 2014; Lindsay, Semmler, Weber, Brewer, & Lindsay, 2008; Loftus & Harley, 2005; Nyman, Lampinen, Antfolk, Korkman, & Santtila, 2019). Similar to time, actual distance and perceived distance can often be discrepant as people appear to underestimate their actual distance a day after the event (Lindsay et al., 2008). There appears to be some moderating factors, such as the age of the eyewitness impacting perceptions of distance and ultimate accuracy (Nyman et al., 2019). Additionally, decreased lighting decreases the accuracy to subsequent eyewitness identifications (Jong, Wagenaar, Wolters, & Verstijnen, 2005; Wagenaar & Van Der Schrier, 1996). In a recent study, researchers created ecologically valid conditions (i.e., live targets in real-life settings) to determine the combined effect of distance and lighting, and found that at the furthest distance and poorest lighting, participants did no better than chance, indicating that the combination of both factors significantly reduces accuracy (Nyman, Antfolk, Lampinen, Tuomisto, Kaakinen, Korkman, Santilla, 2019).

### **System Variables**

System variables tend to take place after the event has occurred, when the legal system gets involved to find the perpetrator and can control how the investigation proceeds. The memory of the eyewitness can be distorted by the way in which the police obtain the necessary information from the eyewitness. These variables can be divided into two broad categories: interviewing eyewitnesses, where the eyewitness recounts the event, and identification of suspects, where the eyewitness is given a photo-array or lineup and asked if the perpetrator s/he

saw at the crime is in this array or lineup. While both the interview and identification processes rely on the eyewitness's memory, social influence surrounding these procedures can impact the eyewitness's memory. For example, misleading questions could impact the memory of the culprit (Dando, Geiselman, MacLeod, & Griffiths, 2015; Fisher, Schreiber-Campo, Rivard & Hirn, 2014). However, for the purpose of this dissertation, there is only a focus on the variables surrounding the lineup and identifications and not on the procedures impacting interviewing.

**Lineup structure.** When an eyewitness is asked to identify a suspect, she is usually presented with the suspect as well as known innocent individuals called *fillers* or *foils*. The similarity of the characteristics of the fillers and the suspect are important and could create a biased lineup. For example, if the suspect is the only person in the lineup who remotely resembles the eyewitness's description given to the police, there is a significant increase in choosing the suspect (Wells, 2012). However, if the suspect is innocent, this procedure could lead to a false identification. Essentially, the lineup should be administered in a way in which the eyewitness cannot figure out which individual in the lineup is the suspect based on features of the fillers. An easy way to determine whether the lineup is biased is to provide outside people with only the description of the culprit and then present them with the lineup for identification. If the suspect is selected at a similar rate to the other fillers, then the lineup is unbiased. However, if the suspect is identified at a higher rate than the other fillers, then the lineup is biased against the suspect.

**Lineup size.** Currently, live lineups in the United States typically include five to six people, and photo lineups typically include six or eight photos. As the number of people in the lineup increases, it decreases the chances of a mistaken identification, but does so at a decreasing

rate. Adding five more fillers to a six-person lineup would decrease the chances of a mistaken identification more than adding five fillers to a 12-person lineup (Wells, 2012).

While one could argue that, even with diminishing returns, increasing the size of the lineup to a high number of fillers would be beneficial, these chances only refer to *target-absent lineups*, where the perpetrator is not included in the lineup (A lineup where the perpetrator is included is called a *target-present* lineup). More research needs to examine the association of lineup size and the chances of an accurate identification, but the little research on the topic appears to be promising. Levi (2002) found that an increase from 10 people to 40 people in a lineup did not decrease accurate identification rates, and in fact, eyewitnesses have shown to view up to 300 photos without decreasing the chances of an accurate identification (Ellis, Shepher, Flin, Shepher, & Davies, 1989; Lindsay, Nosworthy, Martin & Martynuck, 1994).

A *showup* is when a suspect is presented to an eyewitness to determine whether he is the culprit but without any fillers. Research has shown that showups are a highly suggestive procedure, in that the suspect would not be presented to the eyewitness if the investigators did not think he is guilty, as well as because all inaccurate identifications fall on the innocent suspect (whereas in a lineup it could potentially fall on a filler). Numerous studies demonstrate that lineups produce better outcomes over showups (Neuschatz, Wetmore, Key, Cash, Gronlund, Goodsell, 2016; see Wells, Kovera, Douglass, Brewer, Meissner, & Wixted, 2020). However, practically, showups are often necessary and need to be conducted. For instance, police cannot arrest a suspect just from matching a description, and so an eyewitness at the scene can identify the suspect and create probable cause for the arrest. Nevertheless, even with the necessary circumstances to conduct a showup, measures can be taken to reduce its suggestibility, such as video-recording the showup (see Wells et al., 2020)

**Prelineup instructions.** Research has shown that instructions to the eyewitness regarding the lineup can impact the likelihood of making a false identification. The very nature of being brought in for an identification procedure creates a reasonable assumption that there is someone in custody who may be the culprit and the eyewitness is expected to pick him out. There is research to suggest that eyewitnesses expect the culprit to be present. For example, in one study, 90% of participants indicated after their identification that they expected the perpetrator to be present and their task was to identify that person (Memon, Gabbert, & Hope, 2004). Therefore, prelineup instructions explicitly stating that the perpetrator may or may not be in the lineup is a reminder that the investigators may not have found the culprit and could reduce the pressure to make an identification. In fact, explicitly stating that the perpetrator may or may not be in the lineup decreases the likelihood of making an identification when the perpetrator is not in the lineup, but has little effect on identifying the culprit when he is present in the lineup (Malpass & Devine, 1981; Steblay, 1997). Additionally, certain instructions such as, “Try to identify the person who robbed you” increases the chances of making a false identification, as it suggests to the eyewitness that the perpetrator is in the lineup (Wells, 2012). Therefore, properly instructing an eyewitness before conducting a lineup is an incredibly important contribution to making identifications reliable. While a more recent meta-analysis suggests that a target-present lineup might be slightly negatively impacted by instructions indicating that the person may or may not be in the lineup, the decline is much smaller than mistaken identifications in a target-absent lineup (Clark, 2005). The effect has been shown to be helpful to both adults and children (Brewer, Keast, & Sauer, 2010).

However, what could simply be seen as encouragement during a stressful time outside of the lineup procedure (“you are going to be able to pick the person out from a lineup”) can

actually undermine the effects of an unbiased lineup. Receiving that encouragement before receiving the unbiased instructions (compared to those who did not get that encouragement) made it three times more likely to pick someone out of a lineup. The lineups, however, did not contain the culprit, so any identification in this study was incorrect (Quinlivan, Neuschatz, Cutler, Wells, McLung, & Harker, 2012). Therefore, while it is important to administer unbiased instructions to reduce the pressure and make identifications reliable, it is also important not to provide any suggestion that the culprit is in the lineup even outside the lineup procedure.

**Sequential vs. simultaneous.** A lineup is traditionally designed where a witness views all members of the lineup at the same time, known as a *simultaneous lineup*. Another type of lineup was proposed in the late 1980s and early '90s claiming to increase correct identifications. This procedure is known as the *sequential lineup* where the eyewitness reviews the member of the lineup one at a time and provides a “yes” or “no” response before moving to the next person in the lineup. The sequential lineup does not allow the eyewitness to review all the faces at once and choose the face that is the closest to what they remember. Rather, the eyewitness must analyze each face individually and will not know if the next member of the lineup will be more similar to the culprit than the one she is currently viewing. Indeed, studies have shown that the simultaneous procedure is more likely to produce a false identification than is the sequential procedure (Wells, 2012).

Using a diagnosticity ratio, which compares correct identification rates to false positive identification rates, the greater the ratio (namely, the more correct identifications and fewer false positives), the better the lineup procedure. The sequential lineup creates a better ratio than the simultaneous procedure. However, another statistical analysis known as the Receiver Operating Characteristic Analysis (ROC) shows that sequential is not better than simultaneous. The ROC

measures the eyewitnesses' discriminability by analyzing different operating points based on confidence levels, and revealed that eyewitnesses are less likely to guess using the sequential method, and because they are less likely to guess, when they do make an identification it is more accurate (Mickes, Flowe, & Wixted, 2012). This debate has generated much heated discussion in the eyewitness field and, unfortunately, will not be settled any time soon.

**Double blind.** The lineup administrator often knows which member of the lineup is the suspect and which members are the fillers. Research has shown that lineup administrators can unintentionally provide cues to the eyewitness as to which person is the suspect, making it more likely that the eyewitness will identify the suspect (Kovera & Evelo, 2017). For instance, when an administrator is told that a specific member in the lineup is the suspect (which was randomly selected), the eyewitness is more likely to choose that particular member from the lineup (Haw & Fisher, 2004; Phillips, McAuliff, Kovera, & Cutler, 1999), regardless of whether the suspect was indeed the culprit (Kovera & Evelo, 2017). The suggestive cues may be intentional (Haw & Fisher, 2004; Rhead, Rodriguez, Korobevnikov, Yip, & Kovera, 2015), and they may be verbal or non-verbal, such as smiling when eyewitness was looking at the suspect (Zimmerman, Chorn, Rhead, Evelo, & Kovera, 2017). There also appears to be more pressure from non-blind administrators to choose someone from the lineup (Greathouse & Kovera, 2009), specifically directed towards the suspect (Zimmerman et al., 2017). Moreover, when the eyewitness chooses a member of the lineup that the administrator believes to be suspect, the eyewitness indicates higher levels of confidence in his/her identification (Garrioch & Brimacombe, 2001).

Furthermore, knowing who the suspect is could influence the administrator's interpretation of an identification and subsequently what they record about the identification. For example, if an eyewitness says, "I'm not sure. Maybe #4, but I don't know," a non-blind



administrator may interpret that as a positive identification if #4 is the suspect, or thinks the response is indicating “not present” if #4 is an innocent filler, both interpretations being incorrect (should be a “don’t know;” Rodriguez & Berry, 2014). Therefore, the person who administers the lineup should not know which member of the lineup is the suspect to avoid subtly suggesting to the eyewitness who the police think the perpetrator is. This procedure is known as “double blind” because neither the administrator nor the eyewitness know who from the lineup is the suspect.

Another reason for the administrator to be blind to the identity of the suspect is to avoid a post-identification feedback (PIF) effect. The PIF effect occurs when the lineup administrator provides confirming feedback to the eyewitness that he correctly chose the suspect in the lineup. Decades of research has shown that providing positive feedback to the eyewitness not only increases their confidence in their identification, particularly when they are incorrect (Garrioch & Brimacombe, 2001; Steblay, Wells, & Douglass, 2014), but also increases their confidence for other aspects of their eyewitness report, such as better viewing conditions of the crime (Wells & Bradfield, 1998). Therefore, double-blind administration would not only reduce the pressure on eyewitnesses to pick the suspect in custody, but also ensure that the administrator cannot provide feedback to the eyewitness that would inflate his/her confidence in the identification and distort his/her perception of the event.

### **Postdiction Variables**

Postdiction variables are neither estimator or system variables but rather are variables that correlate with eyewitness accuracy. The most researched variables are the confidence of the eyewitness in the identification, and how long the eyewitness reviews the lineup before making the identification, and self-reported decision processes.

**Confidence.** Eyewitnesses will often express a confidence in their decision after making an identification. It is recommended that the confidence statement should be gathered verbatim in the witness' own words immediately after the identification occurs (National Research Council, 2014; Wells et al., 2020). Over the past few decades, there has been considerable research conducted on the confidence-accuracy relationship in eyewitness identifications which has yielded mixed results (Deffenbacher, 1980). While intuitively it would be appropriate to think that confidence and accuracy would be highly related, it appears that even highly confident eyewitnesses were making many errors. Wixted and Wells (2017) recently outlined in an article that under "pristine" circumstances, high confidence identifications immediately after an identification is correlated to accuracy and is reliable. The definition of "pristine" includes that the lineup should only contain one suspect, the suspect should not stand out in the lineup, a double-blind procedure with standardized instructions that the perpetrator may not be there should be administered, and that the confidence level of the eyewitness is recorded after the eyewitness makes the identification.

Documenting the initial confidence is very important due to the PIF effect, which, as mentioned above, is when positive feedback after an identification falsely boosts the eyewitness's confidence level. Even implementing procedures such as double-blind lineups and withholding any feedback after an identification, there are other factors that could conflate an eyewitness' confidence in their identification, such as subsequent interviews, hearing of other incriminating evidence, and merely being brought in to testify (National Research Council, 2014; Wells et al., 2020). Therefore, it is not only important to conduct the lineup under the best circumstances, but also to record the initial confidence rating after the identification before it is

presented to a jury in order to preserve that level of confidence before it is tainted by other factors.

It is important to document the eyewitness's confidence statement verbatim and not to paraphrase in order to keep the identification untainted, but the interpretation of the verbatim confidence report is equally important and requires an appropriate understanding to determine accuracy. The primary method for collecting confidence in eyewitness identification *research* is through scale ratings, where higher numerical percentages indicate a higher level of confidence, allowing for an easy and concrete way to determine the eyewitness's confidence is and whether confidence has changed over time in certain circumstances. However, in practice, eyewitnesses often give verbal reports such as, "I'm pretty sure it's him" leading those interested in the field wondering whether these forms of confidence measures translate to a confidence-accuracy relationship under similar circumstances. Recent research shows incredible variability among participants' interpretation of confidence, indicating that eyewitnesses may use the same verbal statement to convey different confidence levels. Administrators may not interpret these verbal statements in the same way not only generating great variability among administrators' and investigators' understanding of the identification, but also a misinterpretation of the eyewitness's intended confidence level (Dodson & Dobolyi, 2015; Greenspan & Loftus, 2020). This variability and misinterpretation was particularly strong when a justification was coupled with their confidence (e.g., "I'm fairly certain it's him; I remember his chin"; Dodson & Dobolyi, 2015). Some current work has shown promising results that the confidence-accuracy relationship is still strong, particularly under certain circumstances such as different types of lineup procedures (Mansour, 2019) or certain verbal scales (Tekin, Lin, Roediger, 2018), but future

research will need to incorporate verbal statements in their studies not only for ecological validity, but also for investigators to take the empirical work seriously to implement change.

**Response latency.** Considerable evidence has shown that eyewitnesses who accurately identify suspects from lineups do so faster than those who do not make accurate identifications. Sporer (1992) suggested that identifying the common features from memory and the stimulus face allows for very fast decisions, but comparisons to a target-absent lineup have fewer common features and could potentially take longer to make a decision. Dunning and Peretta (2002) set the reliable response time to be no more than 10-12 seconds. Before this cutoff, the eyewitnesses were nearly 90% accurate, while those who took longer than 12 seconds decreased to only 50% accurate. However, Weber and colleagues (2004) found that certain factors impacted the time-accuracy relationship (e.g., age of witness or lineup procedure), and the latency time cutoff ranged from 5 seconds to 29 seconds (Weber, Brewer, Wells, Semmler, & Keast, 2004). Nevertheless, the fact that eyewitnesses make accurate identifications faster than inaccurate identifications is a consistent and reliable finding.

**Relative vs. absolute judgments.** It is understood that eyewitnesses use “relative judgment” to identify the perpetrator in the lineup, where they tend to select the person in the lineup that is the closest resemblance to the perpetrator relative to the others in the lineup. Therefore, when the perpetrator is in the lineup, it is not especially alarming, since the perpetrator in the lineup would presumably be the closest resemblance to himself. However, this form of identification is problematic when the perpetrator is not in the lineup, as the eyewitness will choose the person who looks most like the culprit, but is not the culprit (Wells, 2012; Wells et al., 2020). Of course, in the real world, ground truth regarding the perpetrator is unknown.

Relative judgments can be contrasted with “absolute judgments” where witnesses compare those in the lineup directly to their memory, as opposed to each other.

Stern and Dunning (1994) as well as other studies (see Wells, Memon, and Penrod, 2006) have found that eyewitnesses who stated that they immediately recognized the suspect (i.e., an absolute judgment) were more accurate than eyewitnesses who agreed with the statement “I compared the photos [in the lineup] to each other to narrow the choices” (i.e., a relative judgment). However, the problem with this self-report procedure is that it is susceptible to distortion. For example, the PIF effect increases the likelihood that the eyewitness will say that the culprit just “popped” out, or perhaps eyewitnesses will say that the perpetrator “popped” out if they think that their self-report will be used to assess the accuracy of their identification (Wells, Memon, & Penrod, 2006). While the common argument is that, generally, an absolute judgment would be preferable to a relative judgment, studies have generated inconclusive results (Fife, Perry, & Gronlund, 2014). However, there is a study currently underway that plans to directly test whether subjects can adopt either judgment and that an absolute judgment would reduce false identifications (Baldassari & Lindsay, 2017).

### **Recent Policy Developments**

Many jurisdictions have adopted new identification procedures in light of the vast scientific literature on eyewitness identifications, such as double-blind lineups and instructions the eyewitness receive before viewing the lineup. Additionally, there have been recent reforms to assist jurors in understanding the eyewitness testimony and the issues that surround it to be better informed.

### **National Research Council Recommendations**

The National Research Council (NRC) is the research program at the National Academy of Sciences, a non-profit institution that conduct research and advise on national and global issues. In October 2014, the NRC published a report on eyewitness identification, assessing the extensive body of literature and recommendations of how to conduct lineups. These recommendations included:

- i) both live and photo lineups should be conducted by a blind administrator, and if the police agency is too small for this to be possible (I.e., the administrator knows who the suspect is due to the lack of manpower in the agency), they recommend a “folder shuffle” where the administrator presents the photo lineup but in a manner where the administrator does not know where the picture of the suspect is in the array of photos so he cannot unintentionally convey any hints as to who the suspect in custody is;
- ii) there should be standardized witness instructions where the administrator tells the eyewitness before presented with the lineup that the perpetrator may or may not be in the lineup and that the investigation will continue regardless of the selection the eyewitness makes;
- iii) After the eyewitness makes a selection, the officers should document immediately the confidence statement of the eyewitness where the eyewitness states how certain he is in his identification. Having the initial confidence reported will allow juries to evaluate the real level of confidence as opposed to a possible inflated confidence that could occur after the identification or before trial;
- iv) There should be both recruit and refresher training to law enforcement on general information on memory and specific lineup procedures (such as standardized witness

instructions) to ensure the lineup practices are implemented appropriately and to prevent compromising the evidence; and

v) The lineup procedures should be video-recorded to have a tangible record of the procedure and can refer back to it if necessary.

### **“The White Paper”**

Most recently, the Executive Committee of the American Psychology-Law Society created a subcommittee of six senior eyewitness researchers to update the 1998 scientific review paper for guidelines for eyewitness recommendation procedures (Wells et al., 2020). These researchers reviewed the literature on system variables and postdiction variables to bolster and update the four recommendations from the previous review paper with subsequent research and recommend five additional procedure recommendations. These nine recommendations include:

- i) **Prelineup Interview Recommendation:** Before conducting a lineup, an officer should video-record the interviews with witnesses as soon as possible to document their account of the event (e.g., describe the culprit, their viewing conditions, etc.) and their familiarity with the culprit, as well as instruct the witnesses not to discuss the event with other co-witnesses and not to investigate on their own.
- ii) **Evidence-Based Suspicion Recommendation:** Before putting a suspect in a lineup, there should be evidence-based reason to suspect that the individual is guilty. The evidence should be documented before administering the lineup.
- iii) **Double-Blind (or Equivalent) Recommendation:** Neither the administrator nor the witness should know who the suspect is in the lineup. Other effective methods of preventing the lineup administrator from influencing the identification can be

implemented if there is no blind administer the lineup (e.g., photo-array in an envelope and the eyewitness chooses in an empty room).

- iv) Lineup Fillers Recommendation: The photo array or live lineup should have only one suspect and at least five appropriate fillers (i.e., the suspect does not stand out).
- v) Prelineup Instructions Recommendation: The eyewitness should be instructed before the lineup procedure begins that: (a) the administrator does not know who is the suspect and who are the fillers; (b) the culprit might not be in the lineup and a “none of these” would be an appropriate answer; (c) they have the option of saying “don’t know” if they are unable to make a decision; (d) they will state their confidence after making a decision; and (e) the investigation will continue regardless if an identification is made.
- vi) Immediate Confidence Statement Recommendation: Regardless of the identification decision (positive identification, “not present,” “don’t know”) witnesses should be asked to make a confidence statement.
- vii) Video-Recording Recommendation: the prelineup instructions, identification procedure, and witness confidence statement should be video-recorded.
- viii) Avoid Repeated Identifications Recommendation: multiple identification procedures with the same suspect and same eyewitnesses should be avoided regardless of the eyewitness identification decision.
- ix) Showups Recommendation: Showups (i.e., when an eyewitness is only presented with the suspect and asked whether the suspect is the perpetrator) should be avoided whenever possible. In the circumstances where showups are necessary, appropriate procedural measures should be implemented, such as eliminating suggestive cues,



instructing that the person might not be the perpetrator, documenting a confidence statement, and video-recording the showup procedure.

### **Summary**

There is a significantly vast literature regarding eyewitness identification and the factors that could lead to memory and identification errors. This research has informed the understanding of memory and social influences that could influence memory, while also informing best practices for administering lineup procedures. Based on this research, it is important to understand how jurors would perceive the eyewitness identification evidence and testimony in court. The next chapter reviews this literature.

## CHAPTER 2: JURORS' PERCEPTIONS OF EYEWITNESS IDENTIFICATIONS

### The Biggers Criteria

The U.S. Supreme Court's decision in *Neil v. Biggers* (1972) was the first time that the Court had made explicit recommendations about how to evaluate eyewitness identifications in criminal cases. These criteria, known to eyewitness researchers as *the Biggers criteria*, are the witness's certainty, the quality of his or her view, the amount of attention paid to the culprit, the agreement between the witness's description and the suspect, and the amount of time between the crime and the identification attempt.

In *Biggers*, the question posed to the Supreme Court was whether the showup (where only the suspect is presented to the eyewitness) was "unnecessarily suggestive." The defense/appellant argued that the victim was presented with a showup that included Biggers seven months later—a long period of time—and after being presented with multiple lineups and showups where no identification was made. Furthermore, the victim only identified Biggers after he was required to say, "shut up or I'll kill you," not when she initially saw him. However, using the criteria described above, the Supreme Court concluded that the showup procedure was not unnecessarily suggestive. First, the victim had sufficient time and adequate light to view her rapist during the attack. Second, the facts of the case suggested that she had paid close attention to his face while being assaulted. Third, her description was thorough, including specific details of the attacker's height, age and voice. Fourth, she conveyed a high level of confidence in her identification. Last, although the showup took place seven months after the crime, the Court reasoned that the fact that because the victim had never made any previous identifications when presented with numerous lineups and showups, "her record for reliability was thus a good one, as she had previously resisted whatever suggestiveness inheres in a showup" (p. 201). Therefore,

the Court determined that, despite some suggestive procedures, the witness's identification was acceptable. A subsequent Supreme Court case upheld the notion that a suggestive identification does not necessarily exclude the evidence if other circumstances deem it reliable (*Manson v. Braithwaite*, 1977). As discussed in the previous chapter, the empirical literature that came about after this case outlines significant problems with the *Biggers* criteria as reliable evidence (see Wells & Quinlivan, 2009).

### **Factors Jurors use to Assess Eyewitness Testimony**

Compared to other forms of evidence, eyewitness testimony in which the witness has made a positive identification has shown to be very powerful in persuading the jury. Loftus (1974) had mock jurors read a court case that did not have eyewitness testimony and 18% of participants found the defendant guilty. The second condition had the same court case but the eyewitness identified the defendant as the perpetrator, and 72% of participants found the defendant guilty. The third condition included the same case with the eyewitness, but the defense stated that the eyewitness was not wearing his glasses, presumably undermining the reliability of the identification. Surprisingly, however, 68% of participants found the defendant guilty.

Jurors give eyewitness testimony a lot of weight when rendering a verdict, but certain aspects of the testimony and characteristics of the eyewitness have shown to increase its perceived value. For example, jurors strongly rely on eyewitnesses' confidence as they testify (Cutler & Penrod, 1995), which is not necessarily indicative of accuracy due to PIF. If jurors rely too strongly on the eyewitness' conflated confidence at trial, jurors will have difficulty identifying accurate and inaccurate witnesses (Lindsay, Wells, & Rumpel, 1981; Cutler & Penrod, 1995). Moreover, research has shown that jurors are unaware of the situations and conditions that could make an identification unreliable (Cutler & Penrod, 1995, Deffenbacher & Loftus, 1982).

Bradfield and Wells (2000) conducted two studies to see how jurors combine the five *Biggers* criteria to assess the reliability of the testimony. They hypothesized that if the eyewitness indicated high confidence, jurors would not use the other four *Biggers* criteria to assess reliability. The first study manipulated certainty (high vs. low), view (good vs. poor) and attention (high vs. low), and the second study manipulated certainty (high vs. low), description (good vs. poor), and time (short or long retention interval). Both studies asked participants about the likelihood of the defendant's guilt, the likelihood that the participant would convict the defendant (1-7 scale), and rated the eyewitness on each *Biggers* criteria. The results showed that jurors apparently used and incorporated each variable to construct an overall impression of the accuracy and reliability.

The manner in which the event is recounted has also shown to influence jurors' perception of eyewitness reliability. A more detailed account, even on peripheral aspects of the event, has shown to increase verdict rates (Bell & Loftus, 1989). Additionally, eyewitnesses who told their account in a non-authoritative manner were not only rated as less intelligent, likeable, competent and believable than an eyewitness with authoritative speech, but were also not as effective; mock jurors awarded the plaintiff less money than an eyewitness who spoke authoritatively. (O'Barr & Conley, 1974).

Lastly, characteristics of the eyewitness appear to matter to jurors. Garcia and Griffitt (1978) tested the likeability of an eyewitness by providing the same testimony to participants but portrayed the eyewitness in a positive or negative light with specific character traits. The eyewitness who was portrayed in the positive light was viewed as more credible and increased the number of guilty verdicts. Additionally, there are conflicting findings as to jurors' perceptions of children, adults, and the elderly, though it may be confounded by the type of

crime for which they are eyewitnesses (see Pozzulo, Lemeiux, Wells and McCuaig, 2006). On the one hand, jurors may think that children and/or the elderly are highly suggestible and have poor memories (Loftus, 1996), but on the other hand, jurors may think children do not have any incentive to lie and are, therefore, deemed more credible. Motive also can play a role in believing the eyewitness, compromising the credibility of the eyewitness (Loftus, 1996).

### **Jury Instruction**

Courts in our justice system have sometimes used instructions to caution jurors about the concerns surrounding eyewitness identification, such as the *Telfaire* instruction (*U.S. v. Telfaire*, 1972). This instruction is based on the five *Biggers* criteria, which, as explained above, does not take into consideration the large eyewitness literature that undermines much of the criteria. Additionally, the instruction does not explain how memory works or how these criteria might influence eyewitness accuracy, and does not include the complex and moderating factors that could contribute to errors, such as inflated confidence. Essentially, the fact that these instructions are based on case law and not psychological research undermines the usefulness of these instructions (Cutler & Penrod, 1995). In fact, research has shown that these instructions are difficult to understand (Desmarais & Read, 2011; see also Jones, Bergold, Dillon, & Penrod, 2017), and that the instructions have not shown to help the comprehension of the evidence or their verdicts (Cutler, Penrod, & Dexter, 1990; Greene, 1988). Greene (1988) simplified the instructions but this generated skepticism towards the eyewitness testimony by reducing convictions regardless of the quality of the eyewitness identification and testimony (see Jones & Penrod, 2017).

In *New Jersey v. Henderson* (2011), the Court retained a Special Master to review the vast empirical research on eyewitness identification and provide a report on these procedures.

Based on the report, the New Jersey Supreme Court determined that, if the defendant presents evidence of suggestibility or problematic identification procedures, all of the system and estimator variables relevant to the case should be reviewed at a pretrial hearing. If the prosecution can demonstrate that the identification is still reliable, the eyewitness identification will be admitted. However, when the identification evidence is admitted, courts must instruct the jury on the research concerning relevant system and estimator variables, as well as the three stages of memory, in order to help jurors evaluate the reliability of the identification. The Henderson Court proposed that “even with matters that may be considered intuitive, courts provide focused jury instructions” because “it is the Court’s obligation to help jurors evaluate evidence critically and objectively to ensure a fair trial” (pp. 123–124). Moreover, they noted that the added benefits of these enhanced jury instructions, such that they are “focused and concise, authoritative (in that juries hear them from the trial judge, not a witness called by one side), and cost-free” (p. 126).

Despite this attempt to improve jury instructions, recent research has shown that these instructions instead of helping jurors distinguish strong from weak eyewitness testimony, it made jurors skeptical of eyewitnesses altogether. Regardless of the testimony’s strength, the jurors reduced their conviction rates in half (Papailiou, Yokum, & Robertson, 2015). Subsequent research has supported the argument, and researchers are suggesting for the instructions to be modified to provide jurors with the helpful information as intended while avoiding complete skepticism of eyewitness identifications (Dillon, Jones, Bergold, Hui, & Penrod, 2018).

### **Summary**

Empirical work has clearly demonstrated the strong effect that eyewitness identification evidence has on jurors and what factors might influence the credibility of the evidence.

Unfortunately, attempts to mitigate the over-valuing of the testimony has not yet proven effective. However, it is encouraging to see the courts utilizing the large eyewitness literature to inform instructions, and hopefully future research and endeavors can help with the construction of better jury instructions.

While there has been considerable work demonstrating the factors that could lead to eyewitness identification errors and how this evidence appears in the courtroom, there is only a focus on *positive identifications*. While some studies include information of other types of identification responses (e.g., prelineup instructions decreasing the likelihood of making a positive identification when the perpetrator is not in the lineup), this research is couched in how it reduces positive identification errors, and less on correctly rejecting a lineup. It appears that the research has been “unduly dismissive” of other types of identification responses, and the usefulness they could potentially have (Clark & Wells, 2008, p. 420). The subsequent research, policy, and law governing this body of work has assisted in perpetuating this notion that positive identifications are the main focus. The next chapter will explore non-identifications, where an eyewitness states that the defendant is not the perpetrator he saw commit the crime, and its perception of probative value in the research and the courtroom.

## CHAPTER 3: NON-IDENTIFICATIONS

### Non-Identifications Can Have Probative Value

It is surprising that very little of the vast eyewitness identification research focuses on non-identifications—namely, when an eyewitness testifies that the perpetrator he saw at the crime is *not* presented in the lineup. This eyewitness is not someone who is unsure and therefore does not make an identification; rather, this eyewitness affirmatively states in court that the defendant is not the person he saw at the time of the crime. Just as a positive identification can be probative in that it would suggest that the suspect is indeed the perpetrator, a non-identification could also have probative value and indicate that the suspect is, in fact, not the criminal. However, some commentators have argued that non-identifications can be considered uninformative because of the multiple reasons why a person might not identify someone in the lineup (e.g., poor lighting at the crime scene). Brandon and Davies (1973) highlighted this very notion in their book by claiming that those who make non-identifications are not called into court as witnesses because their non-identifications do not appear probative. Additionally, Sobel (1972) suggests that making a non-identification suggests memory failure and is, therefore, uninformative. The research and law governing the evaluation of the reliability of eyewitness identifications and testimony do not focus on non-identifications, reinforcing the notion that they are unimportant. But some scholars have challenged this view. This section discusses how non-identifications could be useful in determining an individual's innocence.

Wells and Lindsay (1980) were the first to explain that it is illogical to assume that a positive identification is informative but a non-identification is not. Using the principles of Bayes theorem, they showed that if a positive identification increases the likelihood that the suspect is the perpetrator, then logically, a non-identification must decrease the likelihood that the suspect



is the perpetrator. It is even possible that a non-identification could reduce the likelihood that the suspect is the perpetrator more than a positive identification increases the likelihood that the suspect is guilty. Nevertheless, they stress that non-identifications should, at the very least, be reviewed and considered if an eyewitness makes that claim. The logic underlying this claim is explained below.

### **Using Principles of Bayes Theorem to Assess Probative Value**

To understand the potential probative value of a non-identification, I give a more basic example of a negative drug test to show how a non-identification (or negative test result) has value. Suppose that there is a sample of 20 people, ten of whom have taken a specific drug and ten of whom have not. Before any drug test is administered, the likelihood that a randomly selected person has taken the drug is 50%, since half of the sample took the drug. This is known as the “base rate.” Suppose the test is administered and comes back positive. What does that tell you? What if the test comes back negative; what does that tell you? The answer depends on the properties of the test. If the test were 100% accurate, meaning that a person who took the drug would always test positive (i.e., the true positive rate, also known as the “sensitivity”), and a person who did not take the drug the test would always test negative (i.e., the true negative rate, also known as the “specificity”), and the test came back negative, then we know for certain that the selected person did not take the drug.

But let’s say that if a person took the drug, the test would only detect the drug half of the time (sensitivity = 50%), but if the person did not take the drug, the test would always come back negative (specificity = 100%). Therefore, if all ten people who took the drug were tested, five of them would receive a positive test result and five would receive a negative test result. If all ten

people who did not take the drug were tested, all ten people would receive a negative test result.

This breakdown is outlined in Table 3.1.

Table 3.1. *Contingency Table for Drug Test Example*

	<b>Took Drugs</b>	<b>Did Not Take Drugs</b>
<b>Positive Test Result</b>	5	0
<b>Negative Test Result</b>	5	10
	10	10

Now the randomly selected person, who before the test had a 50% chance of taking the drug, takes the test and receives a negative test result. The person either is one of the ten people who did not take the drug, or he is one of the five people who did take the drug but received a (false) negative result. With 15 people receiving a negative test result—ten of those negative test results are correct, and five of negative test results are wrong—the negative test result increases the likelihood that the person *did not* take the drug to 66% because two-thirds of the time (10 out of 15 times) the negative test result is correct. Alternatively, the negative test result reduces the likelihood that the person *did* take the drugs from 50% to 33%. (see Thompson & Scurich, 2018; Thompson, Scurich, Dioso-Villa, & Velazquez, 2017).

Another way to describe the results is by discussing the “likelihood ratio” which states that the negative test result makes is *two times more likely* that the selected person *did not* take the drug, based on the conditions above. This is calculated based on two different conditional probabilities: the probability of a negative test result given that the person *did not* take the drug (10/10 = 100%), divided by the probability of a negative test result given that the person *did* take the drug (5/10 = 50%; 100/50 = 2). To determine the likelihood of whether he took the drug depends on how common it is to receive the negative test result when one did not take the drug

relative to if one did take the drug. Importantly, the likelihood ratio gives a measure of performance that is insensitive to the base rate (i.e., irrespective of how many people in the population took the drug, see Kaye, 2012).

Table 3.2 describes how the likelihood ratio changes based on different true negative and false negative rates. If the true negative rate is 60% and the false negative rate is a 30%, it is two times *more likely* that the person did not take the drug ( $60/30 = 2$ ). However, if the true negative rate is 90% and the false negative rate remains the same, it is *three times more likely* that the person did not take the drug. If the likelihood ratio is greater than one, the negative test result has probative, exculpatory value. Even if only a minority of people did not take the drug, the drug test can still be powerful evidence; if it is more common to receive a negative test result than a positive test result when one does not take the drug, the negative test result is useful information. Again, the likelihood ratio is the probative value of the test (Kaye, 2017; Lyon & Koehler, 1996; Shaw, Gongola, Teitcher, & Scurich, 2019).

Table 3.2. *Probative Value*

		True Negative Rate (Specificity) (%)				
		0	30	60	90	100
	<b>0</b>	*	$\infty$	$\infty$	$\infty$	$\infty$
False	<b>30</b>	0	1	2	3	3.33
Negative	<b>60</b>	0	.5	1	1.5	1.67
Rate (%)	<b>90</b>	0	.33	.67	1	1.11
	<b>100</b>	0	.3	.6	.9	1

This analysis is exactly how to assess the probative, exonerating value of a non-identification. If the true negative rate is greater than the false negative rate, the non-identification will have probative value. In other words, if the rate that eyewitnesses correctly reject the lineup is greater than the rate of incorrectly rejecting the lineup, the non-identification will have probative, exculpatory value.

The analysis by Wells and Lindsay (1980) demonstrated above showed that, in theory, non-identifications could have probative value in terms of increasing the likelihood that the defendant is not the perpetrator. But, as they note, whether non-identifications do have probative value is an empirical question that depends on the performance of eyewitnesses. When Wells and Lindsay made this argument (1980), only one study had indicated in their article what the non-identification true and false positive rates were (other articles grouped non-identifications with other responses such as “don’t know” or filler choices) and so they could not empirically claim that a non-identification would be probative (though the one study would suggest it is).

Subsequent articles have highlighted the importance of securing clear responses of all different types of identification decisions (and not just on an eyewitness who identified the suspect), and that the exonerating impact of both foil identifications and non-identifications are important and should not be ignored (Levi, 1998; Rassin, 2011; Wells & Olson, 2002; Wells & Turtle, 1986; Wells, Yang, & Smalarz, 2015). Even with inconsistent multiple eyewitnesses (i.e., where one eyewitness identifies the suspect and the other makes a non-identification), Clark & Wells (2008) found that a non-identification response could reduce the likelihood that the suspect is guilty. Clark, Howell and Davey (2008) conducted a meta-analysis with 94 experiments and found that given a non-identification, the likelihood that the suspect is innocent is 2.1 times greater than that of guilt. It is important to note that the large number of studies that specifically separated the different types of identification decisions (and therefore, allowed for the authors to conduct this meta-analysis), non-identifications were not the focus of the articles and not analyzed for its usefulness. A more recent study explored this issue from a different perspective by assessing the value of a correct non-identification on subsequent identification procedures and found that those who correctly rejected a lineup (i.e., non-identification)

performed similarly to those who only saw one lineup with the suspect, and the initial confidence in the non-identification was associated with subsequent identification accuracy in some conditions (e.g., when the second lineup was also a culprit-absent lineup; Smalarz, Kornell, Vaughn, Palmer, 2019).

### **Perceptions of Non-Identification Evidence**

Having established that a non-identification is probative and should reduce the likelihood that the suspect is the perpetrator, a related question concerns whether jurors, as well as other actors in the criminal justice system, treat non-identifications as probative when determining the suspect's guilt. The essential question is what is the perceived probative value of non-identifications? Fifteen studies have examined this issue. These studies are reviewed in this section.

#### **Non-Identifications Inside the Courtroom**

One of the first studies to examine this issue was conducted by McAllister and Bregman (1986) who randomly assigned undergraduate students to one of the 18 experimental conditions ( $n = 12$  per cell). Participants read an armed robbery and murder case with a focus on identification and fingerprint evidence. There were six eyewitness testimony conditions:

- i) a single identification;
- ii) single non-identification;
- iii) single control (an eyewitness who testified that he is unsure if it's the defendant);
- iv) two eyewitness identifications;
- v) two eyewitness non-identifications; and
- vi) two (counterbalanced) conflicting eyewitnesses, in which one made a positive identification and one made a non-identification.

Results indicated that, not surprisingly, a positive identification, both single and multiple (*i* and *iv*), generated significantly higher likelihoods of guilt (1-9 scale;  $M_i = 6.64$ ;  $M_{iv} = 7.11$ ) compared to the *iii*) control ( $M = 5.06$ ). A non-identification however, only produced a significantly lower likelihood of guilt when there were *v*) multiple non-identification eyewitnesses ( $M = 3.42$ ) compared to the control. Comparisons to the *vi*) inconsistent eyewitnesses showed a significant difference with the *ii*) single *non*-identification ( $M_{iv} = 6.17$ ;  $M_{ii} = 5.06$ ). The results, according to the authors, suggest that jurors undervalue “negative evidence,” as indicated by the fact that the non-identification condition was not statistically significant from the control, and that the inconsistent eyewitness condition produced similar results to the single eyewitness condition.

Leippe (1985), however, found results different from McAllister and Bregman. In his first experiment, undergraduates read an armed robbery case. In addition to a victim making a positive identification in all conditions, the bystander’s eyewitness identification was manipulated; participants either read that ( $n = 15$  per cell):

- i) the bystander eyewitness made a positive identification;
- ii) a bystander made a non-identification;
- iii) two bystanders made conflicting identifications (a positive identification and a non-identification); or
- iv) there was no bystander mentioned.

While guilty verdicts were highest for the *iv*) victim identification ( $M = .47$ ) and *i*) victim plus corroborating bystander ( $M = .53$ ) conditions, both the non-identification conditions significantly reduced the frequency of guilty verdicts ( $M_{ii} = .14$ ), even in the case where it was opposed by two positive identifications ( $M_{iii} = .07$ ). Participants also rated the strength of the

evidence against the defendant as weakest in the ii) non-identification bystander condition (1-11 scale;  $M = 4.14$ ), and strongest in the i) corroborating bystander condition ( $M = 6.60$ ). In his second experiment, 114 undergraduate participants in groups of 2-4 deliberated after reading a larceny/assault case. With five conditions in which:

- i) the victim and bystander are consistent with their identification;
- ii) the victim and bystander are inconsistent with their identification;
- iii) the victim and bystander are inconsistent with their identification but the non-identifying bystander does not testify (only noted by the defense attorney in the court room);
- iv) victim identification only; and
- v) bystander identification only,

there was again a significant decrease in guilty verdicts in the non-identification condition when the bystander testified ( $M = .13$ ) compared to the positive bystander condition ( $M = .70$ ). Leippe concluded that jurors use eyewitness non-identifications (if they testify), and attorneys should bring them to testify on behalf of the defense.

McAllister and Bregman (1989) respond to Leippe's article by suggesting that the strength of the case is the reason behind their discrepant findings. They state that Leippe's conviction rates were unusually low in most conditions (e.g., 53%) whereas their study had high likelihoods of guilt (6s and 7s out of 9). Therefore, jurors with a presumption of innocence in Leippe's studies would utilize confirming evidence with a non-identification, and jurors with a presumption guilt in their study would utilize confirming evidence (a positive identification) and underutilize disconfirming evidence—a non-identification.

McAllister and Bregman then conducted an experiment with a 3x3x3 fully-crossed factorial design (12 undergraduates per cell) to test this theory by manipulating the strength of the case

before presented with eyewitness evidence (weak, moderate, strong), manipulating the eyewitness evidence (positive identification, non-identification, and control), as well as manipulating alibi eyewitness evidence (positive identification, non-identification, and control), where an eyewitness testified having seen, not seen, or unsure of seeing the defendant at the alibi location. There were main effects for the strength of the case, the crime eyewitness, and the alibi eyewitness on verdicts and likelihoods of guilt, but there was no interaction. However, the strongest case condition only produced a conviction rate of .57, indicating that the case was not viewed so strongly for all conditions. Therefore, with an overall weak case, the results were similar to Leippe's studies: the conviction rates from the non-identification from the eyewitness at the crime were significantly lower than the control and positive identification. McAllister and Bregman believe they have supported the *confirming evidence theory* by stating that a weak case creates a presumption of innocence and jurors will use confirming evidence and utilize the eyewitness non-identification, but will underutilize disconfirming evidence.

Lindsay, Lim, Marando, and Cully (1986) also conducted multiple eyewitness identification and non-identification studies which appears to partially support McAllister and Bregman's theory above. In their first experiment, 288 undergraduates were randomly assigned to one of the 18 experimental conditions ( $n = 16$  per cell):

- i) the strength of the case was strong or weak;
- ii) zero, one, or two eyewitnesses testified for the prosecution; and
- iii) zero, one or two eyewitnesses testified for the defense.

Therefore, participants read about a purse snatching which included a range of no eyewitnesses to four eyewitnesses. The strength of the physical evidence did not influence verdicts, though the percentage of guilty votes for all conditions was very low ( $M = .33$  for the strong condition),



perhaps indicating it was not a particularly strong case. Nevertheless, there were the most number of guilty verdicts when there were only positive identifications (50%), significantly less so with mixed identifications (34%), and the least guilty verdicts (also significant) when the case consisted of only non-identifications (2%). Similar to Leippe (1985) and McAllister and Bregman (1989), perhaps the weak case allowed jurors to focus on the confirming non-identification evidence. Their second experiment generated similar results; a non-identification significantly decreased guilty verdicts.

Rassin published two articles that included judges' perceptions of non-identifications. Rassin (2013) presented 47 judges with a summary of a case and asked for them to determine the likelihood of the defendant's guilt. Then, judges were randomly assigned to either be presented with additional eyewitness evidence—a positive identification, a non-identification, or a foil identification—and then reevaluate the likelihood of guilt and assess how diagnostic the eyewitness evidence is (scale of 1-100) and render verdicts. While adding positive identification evidence significantly increased likelihood of guilt ratings (46% to 66%), and foil evidence decreased likelihood of guilt ratings (43% to 23%), a non-identification did not change guilt perceptions when added to the evidence (38% to 36%). Additionally, non-identifications were viewed as the least diagnostic (29%) compared to foil and positive identification evidence (53% and 63%, respectively), indicating that a known error (i.e., a foil) appears to have more diagnostic value than a non-identification. This diagnosticity similarly translated into verdicts, with only a 13% conviction rate in the foil condition compared to the other conditions (33% non-identifications, 56% positive identifications). His second and third study had both undergraduates and judges come up with alternative explanations for the eyewitness's

identification decision, and demonstrated that it was significantly easier to “explain away” non-identifications compared to a positive identification and control (p. 209).

Rassin (2018) conducted another study demonstrating that both undergraduates and judges had difficulty understanding the logical reasoning for the absence of evidence, and used a non-identification as the case scenario. That is, participants poorly understood the logical validity of the contrapositive as it relates to eyewitness evidence. Rassin then extends this finding to conclude that those who perform better on this logic test are more likely to acquit in a weak case and more likely to convict in a strong case. However, the weak case includes a confession, which has been shown to be very persuasive (Kassin & Neumann, 1997), and the strong case included unusual circumstances (i.e., a death in a haunted house), which Rassin himself describes in his limitations as less “down to earth” (Rassin, 2018, p. 5), which could have influenced these results.

However, contrary to Rassin’s studies, Wright (2007) found no difference in verdicts and likelihoods of guilt between a foil and non-identification. Wright’s study examined mock jurors’ perceptions (undergraduates) of eyewitness identifications when the eyewitness was presented with a simultaneous or a sequential lineup. However, it is unclear what wording was used for the non-identification to determine whether it was indeed rejecting the lineup or merely not choosing someone because they were unsure if the culprit was in the lineup, which could impact how the non-identification is perceived.

Pozzulo conducted a series of studies with several colleagues on juror’s perceptions of different eyewitness identification decisions and found mixed results. In the first study (Pozzulo et al., 2006), looking only at the identification manipulations (positive identification, non-identification, and foil) on verdicts and witness reliability, mock jurors were more likely to

render a guilty verdict and view the eyewitness as more reliable with a positive identification than a non-identification, but they found no statistical significance between a positive identification and a foil identification. They did not analyze whether there was a difference between a foil identification and a non-identification. According to the authors, a foil identification, a known identification error, should be less compelling than a non-identification, which should be indicative of the defendant's innocence.

In the second study, Pozzulo and Dempsey (2009), again, only looking at the identification manipulations, detected a significant increase in guilty verdicts with a positive identification, but no significant difference between a foil and non-identification. Additionally, a positive identification was viewed as significantly more credible and reliable than a non-identification, but found both eyewitnesses to be equally accurate. Therefore, while jurors perceived the non-identification eyewitness as accurate, they did not appear as credible or reliable as a positive identification, and it did not appear to impact their verdicts.

For the third study, Pozzulo, Lemeiux, Wilson, Crescini, and Girardi (2009), found similar results to Rassin (2013) that non-identifications yielded significantly *more guilty* verdicts than foil identifications, a known error. Furthermore, a non-identification and a positive identification were viewed as more reliable and credible than a foil identification, but a positive identification was still viewed as more reliable and credible than a non-identification.

The last Pozzulo study (Pozzulo & O'Neil, 2012) analyzed jurors' perceptions of multiple eyewitness identification procedures. Participants were told that the eyewitness testifying identified the defendant during a lineup procedure, but they had also reviewed a previous lineup: the earlier identification was of the defendant, a different suspect ultimately not on trial, a filler, or a non-identification. High or low confidence was also manipulated ( $n = 28$  undergraduates per

cell for a 4x2 factorial design). The eyewitness who consistently identified the defendant in both procedures was viewed more favorably than someone who identified the other suspect not on trial. However, the eyewitness who identified a filler before identifying the defendant was not only viewed as more favorable and rendered more convictions than an earlier non-identification, but a previous filler identification was also viewed no differently than the eyewitness who consistently picked the suspect. A particularly surprising finding was that the confidence of the earlier lineup had no effect on the type of previous identification, which is typically considered when determining the accuracy (Cutler, Penrod, & Dexter, 1990). However, the methods used in this study may shed light on these findings. When mock jurors are told that the eyewitness made a non-identification, the administrator then explains that the suspect is #4 (though no indication whether it is the defendant), perhaps implying that the non-identification is a mistake and therefore viewed less reliable. Contrastingly, though the eyewitness was told that her filler choice was wrong, it was merely that the choice was wrong, but never actually told who the police thought was the suspect. Therefore, the eyewitness who identified a foil is now given a form of a second chance to choose reliably who the suspect may be.

Smalarz, Douglass and Chang (2019) conducted a similar study to assess jurors' perceptions of multiple identifications. In two studies, mock jurors read a portion of a trial transcript where an eyewitness identified the defendant in a lineup. However, prior lineup identifications were manipulated: participants read that the eyewitness was administered a lineup without the defendant and made an identification (indicating an error), a non-identification (the correct choice), or no prior lineup was administered (Control; i.e., the eyewitness was only exposed to one lineup with the defendant). High or low confidence of the prior lineup was also manipulated, as well as whether the prior identification was video recorded and presented to participants and

accompanied the testimony. Results indicated that those who made a prior identification of another person before identifying the defendant was viewed as less accurate and decreased guilty verdicts compared to the control group. However, a high-confidence non-identification was only viewed as more accurate when videotape of the prior identification accompanied the eyewitness' testimony. Yet, despite seeing a non-identification as more accurate via videotape, it did not impact verdicts. Nonetheless, this updated study to Pozzulo and O'Neil (2012) indicates that there are circumstances where participants incorporate prior lineup decisions in their evaluation of the evidence, and can assess non-identifications appropriately when made more salient (i.e., via videotape).

### **Non-Identifications Outside the Courtroom**

Boyce, Lindsay and Brimacombe (2008) focus on *investigators'* perceptions after administering a lineup of the suspect and hearing the eyewitness's identification. Undergraduates were randomly assigned to be an eyewitness or an investigator, and the investigator interviewed the eyewitness who either had a "good" or "poor" view of a videotaped crime. Based on the interview, the investigator chose a suspect from a database and rated the probability that the suspect they chose was guilty, presented the lineup to the witness and re-rated the likelihood the suspect was guilty after their identification. The results show that if the eyewitness rejects the lineup, regardless of whether the eyewitness had a good or poor viewing condition, the non-identification reduced the investigators' likelihood of guilt and they are less likely to arrest the suspect. However, it appears that they decreased their likelihood more than they should, based on the accuracy of the eyewitnesses.

Another non-identification study at the investigator level conducted two studies ( $n = 12$  undergraduates per cell or 28 undergraduates per cell, respectively) and found that there is a

recency effect that impacts perceptions of non-identifications (Dahl, Brimacombe, & Lindsay, 2009). If non-identification evidence is presented to investigators first, subsequent evidence determining the defendant's guilt overrode the witness's exonerating credibility. However, there only appeared to be an order effect if the conflicting evidence *strongly* contradicted one another (e.g., a non-identification and weak alibi evidence *did not* have an order effect).

Lastly, Mote and colleagues examined surrounding evidence on perceptions of a non-identification, but this study analyzed the *eyewitness's* perception of their own identification (Mote, Neuschatz, Bornstein, Wetmore, Key, 2018). When participants saw a crime, made a non-identification, and subsequently heard disconfirming confession evidence or informant evidence, participants were more likely to reduce their confidence in their non-identification and subsequently choose someone else from a second administered lineup compared to those who did not receive any other evidence. Additionally, those with lower confidence were more likely to switch compared to high confidence. However, in this study, a non-identification was the wrong choice (i.e., the culprit was in the lineup).

### **Summary**

Many methodological issues surround the small existing literature on jurors' perceptions of non-identifications. First, most of the studies conducted have very small sample sizes, which could contribute to the mixed findings and make them unreliable (Cohen, 1992; Wilson & Wixted, 2018). Second, these studies often used undergraduates for their samples, making it difficult to generalize any of the findings to other jury-eligible populations (Heinrich, Heine, Norenzayan, 2010; Keller & Wiener, 2011). While there is some recent evidence to suggest that student and non-student populations are similar with respect to jury studies (Bornstein et al., 2017) not all elements, such as credibility of the evidence, were reviewed in this meta-analysis.

Third, each study focused on different types of non-identification eyewitnesses (e.g., victim, bystander, alibi), and sometimes included multiple and inconsistent witnesses, making it difficult to see any consistent trend from the studies. Furthermore, many of the conditions for the studies do not translate well to real-world scenarios. For example, the control conditions often used “I’m not sure” eyewitness testimony or are foil identifications. An “I’m not sure” testimony condition is not particularly realistic; with the understanding that confidence levels can increase by merely being asked to testify at trial, as mentioned above (National Research Council, 2014; Wells et al., 2020), one would assume that an eyewitness who testifies at trial would be confident (potentially inflated) in their identification decision. Additionally, with such mixed results comparing non-identifications to foil identifications, more research needs to be conducted on perceptions of foil identifications to know if it is a reliable comparison group in the courtroom setting. Therefore, given the mixed and conflicting literature, it is important to approach this area fresh and clarify the issue, and the present studies will address much of these concerns.

## CHAPTER 4: THE PRESENT STUDIES

The first study explores whether the type of eyewitness identification testimony impacts verdicts. This study was designed to test whether a large sample of jury-eligible adults consider non-identifications exculpatory in a trial context to address some of the methodological concerns of the previous literature.

### Study 1

#### Participants

One hundred and sixty-five participants were recruited online through TurkPrime, a premium platform of Amazon's Mechanical Turk (see generally, Mason & Suri, 2012; Litman, Robinson & Abberbock, 2016). To simulate the makeup of a typical jury, participants were eligible if they were at least 18 years old, had no felony convictions, and a United States citizen at the time of the study. Upon completion of the study, participants received a small monetary reward as compensation. An attention check question was used to ensure participants were paying attention to the materials. This question asked participants to click "disagree," which was one of the available answer choices. Not answering that question correctly clearly indicated a lack of attention to the materials and those participants were immediately excluded from the study. Two participants failed this attention check, leaving 163 participants who took part in the study.

The median age of the sample was 31 years (*Interquartile Range [IQR]* = 16). The sample was composed of 38% identifying as male ( $n = 62$ ) and one participant not identifying as any gender. The sample was predominantly Caucasian (74.5%,  $n = 120$ ); 8.1% identified as Asian ( $n = 13$ ), 5.6% of participants listed themselves as African-American ( $n = 9$ ) or Hispanic or Latinx ( $n = 9$ ); 1.9% identified as Native American ( $n = 3$ ), and 3.7% listed themselves as



mixed ( $n = 6$ ) and indicated at most two of the ethnicities above. One participant identified as “other” but did not specify their ethnicity. Forty percent ( $n = 65$ ) of participants identified as politically liberal, 37.4% identified as politically conservative ( $n = 61$ ), 20.2% identified as independent ( $n = 33$ ), and the rest indicated some “other” type of political affiliation. Sixteen percent of participants have served on a jury ( $n = 26$ ), and only 28% of participants had ever taken part in a mock jury research study ( $n = 47$ ).

### **Procedure and Design**

Participants read a synopsis of a criminal case that has been used in previous research (Simon, Snow, & Read, 2004; Simon & Scurich, 2011; Teitcher & Scurich, 2017). The defendant in the case was charged with Grand Theft. Grand Theft was defined as it is in the California penal code, as “taking possession of property valued at over \$950 that is owned by someone else,” (Cal. Penal Code § 487) The facts of the case consisted of the defendant allegedly stealing \$5,200 from a company’s safe. Incriminating evidence included video footage of a car similar to the defendant’s leaving the parking lot around the time that the crime was committed, and possible motives such as an unpaid debt and a delayed promotion. Evidence for the defense included an alibi witness who saw the defendant dressed in different clothing shortly after the crime and far away from the crime scene, as well as an explanation for the debt.

Participants were randomly assigned to one of the three experimental conditions. The fact pattern noted that an eyewitness either made a positive identification, a non-identification, or there was no mention of eyewitness testimony (control). In the positive identification condition, participants were told that an eyewitness named Mark Richards spoke to a man rushing out of an office who had a sweaty forehead, and then later was asked to view a lineup where he had confidently identified the defendant, Dan Thompson, as the person he saw in the office that

evening. When asked by the prosecutor if he were sure, he responds, “I am absolutely certain... There is no doubt in my mind.” The non-identification condition mimics the exact scenario but participants were told that the eyewitness is presented with a lineup with six individuals, one of whom is the defendant, and that he confidently stated that the person he saw that evening was *not* in the lineup. When asked by the defense attorney if he were sure, he provides the same confidence statement as in the positive identification condition. This confidence statement clearly delineates between a confident non-identification and another reason to not identify the suspect (e.g., “I’m not sure if he’s there.”). Participants also received official judicial instructions on the standard of proof and the presumption of innocence before and after they read the case. Participants then rendered a verdict and provided their likelihood of guilt (“Based on the evidence, what is the likelihood that Dan Thompson stole the money?”) and demographic information. The approximate length of the case materials was 900 words.

It is hypothesized that, consistent with the robust eyewitness literature (e.g., Loftus, 1974), a positive identification would render more guilty verdicts compared to both the non-identification and control. Additionally, it is hypothesized that the non-identification would reduce guilty verdicts but that this effect is predicted to be very small (e.g., Lindsay et al., 1986; McAllister & Bregman, 1989).

## **Results**

Overall, 30% of participants voted to convict the defendant. The percentage of participants convicting the defendant in each experimental condition appears in Figure 4.1. A binary logistic regression was used to analyze the data ( $\chi^2(2) = 10.39, p = .006$ ). While there was a significant difference in guilty verdicts between a positive identification ( $M = .45, SD = .53$ ) and both a non-identification (Non-ID;  $M = .27, SD = .45, p = .048$ ) and control ( $M = .18, SD =$

.37,  $p = .002$ ), there was no significant difference between the non-identification and the control condition ( $p = .260$ ). In other words, a positive identification increased verdict compared to the control group ( $Exp(B) = 3.83$ , 95% Confidence Interval (CI) [1.61, 9.11], Wald  $\chi^2(1) = 9.30$ ), but a non-identification did not reduce guilty verdicts compared to the control group ( $Exp(B) = 1.70$ , CI [.68, 4.24], Wald  $\chi^2(1) = 1.30$ ).

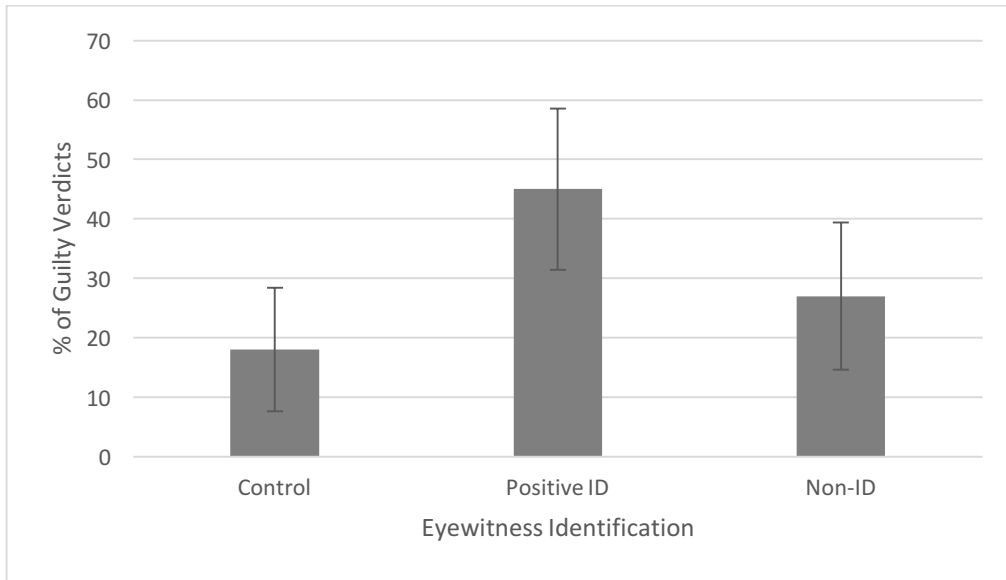


Figure 4.1. *Guilty Verdicts from Study 1 by Eyewitness Condition. Error bars are the 95% Confidence Interval.*

The likelihood of guilt ratings followed the same pattern. A one-way ANOVA ( $F(2, 160) = 11.22, p < .001$ ) demonstrated that the positive identification significantly increased the likelihood of the defendant's guilt ( $M = 72.67, SD = 22.92$ ), compared to the non-identification ( $M = 54.90, SD = 25.05; p < .001, d = .74$ ) and control groups ( $M = 53.70, SD = 22.51; p < .001, d = .84$ ), but there was no significant difference between the non-identification and control conditions ( $p = 1.00$ ).

## Discussion

Study 1 found that while the positive eyewitness identification appropriately increased the number of guilty verdicts, a non-identification did not reduce the proportion of guilty verdicts compared to the control group that received no eyewitness testimony. In other words, mock jurors did not consider non-identifications as exculpatory and apparently dismissed it as non-probative. This finding is consistent with some of the previous research that non-identifications were not viewed as probative and/or did not translate into verdicts (McAllister & Bregman, 1986; Pozzulo et al., 2006, 2009; Pozzulo & O’Neil, 2012; Rassin 2013, 2018).

It is unclear why mock jurors did not consider non-identification evidence useful. Myriad reasons might explain this null effect. One possibility is that jurors could think of numerous reasons to dismiss a non-identification (e.g., the eyewitness failed to get a good look at the culprit during the crime; Rassin, 2013; Sobel, 1972). Perhaps if the eyewitness explained the *basis* for the non-identification, then the mock jurors would grant it greater probative value favoring an acquittal. This hypothesis is consistent with some literature that finds that giving reasons—even irrelevant ones—can influence believability and pervasiveness. For example, Langer and colleagues (1978) demonstrated in one of their studies that when someone provided a reason to cut the line to make copies for a few pages (“Excuse me, I have 5 pages. May I use the xerox machine, *because I’m in a rush?*”), compared to merely asking to cut the line, compliance to cut the line increased from 60% to 94%. However, they also demonstrated that even incredibly redundant, non-compelling reasons (“..., *because I need to make copies?*”) also increased compliance to the same magnitude (93%; Langer, Blank, & Chanowitz, 1978).

There is some research evaluating specific reasons given for positive identifications in a lineup. According to the *featural justification effect*, when participants hear that an eyewitness identifies someone from a lineup and describes a distinguishing feature as the reason for the

identification (“I remember his chin”), the eyewitness’s perceived accuracy and confidence, as well as the likelihood of guilt of the chosen person, is reduced, compared to an unobservable feature (e.g., “He looks like my cousin”), a general expression of recognition (e.g., “He looks familiar”), or no justification given (Dodson & Dobolyi, 2015, 2017; Slane & Dodson, 2019). The authors’ explanation for this effect is that with a fair lineup, no distinguishing feature should stand out, making the distinguishing feature mentioned appear non-diagnostic. In fact, Cash and Lane (2017) demonstrated that a distinguishing feature mentioned after reviewing a biased lineup did not decrease perceived accuracy and confidence. Accordingly, this effect only occurs when participants are presented with the lineup (Slane & Dodson, 2019). One study demonstrated that non-identifications with any justification, relative to no justification, create more variability between the eyewitness’s perceived confidence and the eyewitness’s actual confidence than positive identifications and the direction for the discrepancy in perceived and actual confidence depends on the race of those in the lineup (Dodson & Dobolyi, 2015). However, there is no research on whether the *featural justification effect* specifically influences perceptions of non-identification decisions. Additionally, the work done on this effect presents only the identification to participants and not additional pieces of evidence to examine the role of feature explanations within the trial context.

Though more tangential, two studies have also demonstrated that while guilt ratings for the defendant are lowered when participants are presented with the eyewitness’s discrepant, inflated confidence measures (i.e., low confidence during the identification, high confidence when testifying), this circumstance can be mitigated by providing a reason for the discrepancy (Douglass & Jones, 2013; Jones, Williams, & Brewer, 2008). For example, mock jurors were persuaded by the eyewitness stating that he was nervous at the time of the identification, but now

is certain that the defendant is the culprit. Again, though, these reasons were only examined for positive identifications.

## **Study 2**

Study 2 is designed to test the possibility that the non-identification evidence did not appear probative in Study 1 because of the lack of elaboration for why the eyewitness rejected the lineup. Therefore, this next study only examines case summaries with non-identifications and provides a reason to accompany the non-identification testimony, to determine whether a reason accords the evidence more weight and would subsequently reduce verdicts. Perhaps giving a reason could prevent questioning the non-identification for all the alternative reasons that the non-identification could occur (e.g., such as the lighting was poor). Additionally, the next study examines whether any explanation—not just a compelling explanation—accords the non-identification more weight. It is important to understand whether giving any reason would be adequate to reduce verdicts, or whether a more substantive reason is necessary to make it more likely to occur.

### **Participants**

Two hundred and twenty-five jury-eligible participants were recruited through TurkPrime, though five were excluded from the study for failing the same attention check from Study 1, leaving 220 participants in the sample. Participants received a small monetary reward as compensation. The median age was 33 year (*IQR* = 15). Forty-one percent of participants identified as male ( $n = 90$ ) with one participant not identifying as any gender. The sample was predominantly Caucasian (71.8%;  $n = 158$ ), 8.2% identified as Asian ( $n = 18$ ), 7.3% listed themselves as either African-American ( $n = 16$ ) or Hispanic or Latinx ( $n = 16$ ), 1.4% identified as Native American ( $n = 3$ ), one person listed themselves as Pacific Islander, and 3.6% of

participants indicated a mixed ethnicity which included at most two of the ethnicities listed above. The political affiliation breakdown is as follows: 43% identified as liberal ( $n = 95$ ), 36% identified as conservative ( $n = 78$ ), 19% identified as independent, and the rest indicated an “other” affiliation. Only 15.5% of participants said they had served on a jury ( $n = 34$ ), and 41.4% of participants had taken part in a jury research study ( $n = 91$ ).

### **Procedure and Design**

Mock jurors read the same criminal case as in Study 1, but all participants received non-identification evidence. The explanation associated with the non-identification evidence was experimentally manipulated. There were three experimental conditions. The control group did not have any explanation, identical to the non-identification condition in Study 1. The two other conditions either provided an uninformative explanation or an informative explanation to be associated with the non-identification.

For those in the uninformative condition, participants were told that when the eyewitness was asked why he was so confident in his non-identification, he testified, “I know who I saw and I know it’s not him.” This explanation does not provide more information than one knew before and is thus uninformative in that respect. One could argue it provides additional confidence to the testimony; however, the identification testimony explicitly stated in all conditions that the eyewitness claims, “there’s no doubt in my mind” already bringing the level of confidence to its highest point. Essentially, this explanation for the non-identification is redundant.

For the informative condition, participants were told that when the eyewitness was asked why he was so confident in his non-identification, he testified that, “the man I saw had blonde hair but everyone in the lineup had brown hair.” While not such a strong reason, as one could

easily dye someone's hair a different color, this explanation provides the basis and reason for the eyewitness to feel confident in his non-identification testimony. It is informative in that respect.

After reading the case summary and instructions on reasonable doubt, participants were then asked to render a verdict and provide their likelihood of guilt and demographic information. Note that in order to avoid a floor effect given that all conditions were non-identifications, and the conviction rate for this condition in Study 1 was 30%, the criminal case synopsis used in Study 1 was modified to include an additional piece of incriminating evidence of the defendant's license plate matching a car on the video shortly after the theft took place.

It was hypothesized that the informative condition would reduce the number of guilty verdicts compared to the control group with no reason provided. The uninformative condition tested whether the substance of the reason provided impacts how the non-identification is perceived. This was accomplished by comparing the informative condition to the uninformative condition, which provides no new additional information but does provide a reason.

## **Results**

Overall, 29.5% voted to convict the defendant. Figure 4.2 conveys conviction rates of the defendant in each condition. A binary logistic regression was used to analyze the data (model fit:  $\chi^2(2) = 5.03, p = .04$ ). There was no significant difference in guilty verdicts between the non-informative ( $M = .31$ ) and control ( $M = .30$ ) conditions, but there was a marginally significant effect between the informative condition ( $M = .16$ ) and both the uninformative and control conditions ( $p = .055$ ). Participants were approximately twice as likely to convict when the eyewitness provided an uninformative explanation for the non-identification ( $Exp(B) = 2.20, CI [ .99, 4.8], Wald \chi^2(1) = 3.70$ ).



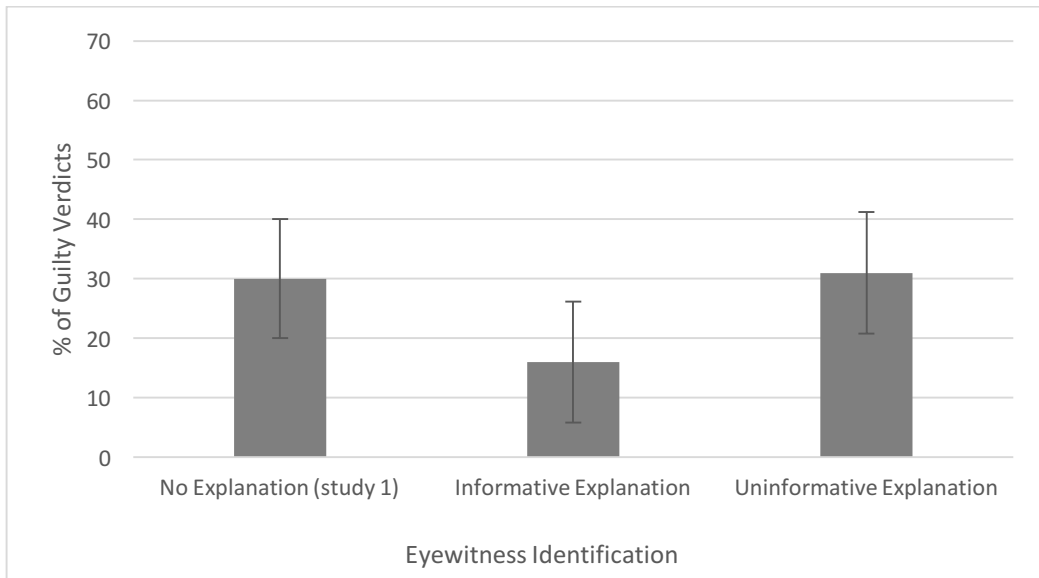


Figure 4.2. *Guilty Verdicts from Study 2 by Eyewitness Condition. Error Bars are 95% Confidence Interval.*

The likelihood of guilt, however, did not follow this trajectory. Despite a lower likelihood of guilt in the informative condition ( $M = 52.72$ ,  $SD = 22.97$ ) compared to the uninformative explanation ( $M = 56.96$ ,  $SD = 25.43$ ) and control ( $M = 58.42$ ,  $SD = 22.57$ ), it was not statistically significant ( $F(2, 217) = 1.146$ ,  $p = .32$ ).

## Discussion

In Study 1, participants did not find non-identification evidence exculpatory enough to affect verdicts. Because many reasons exist for a non-identification to occur, Study 2 provided participants with an informative explanation, an uninformative explanation, or no explanation at all for the non-identification. The number of guilty verdicts from the non-identification condition in Study 1 was successfully replicated in Study 2 when no explanation was provided.

Additionally, participants were responsive to the detailed, informative explanation for a non-identification, as the number of guilty verdicts was reduced by half. And it is not that jurors were responsive to any long-winded explanation—an uninformative reason with a similar number of words was used in the uninformative explanation, but that did not reduce the number of guilty

verdicts. An informative reason, on the other hand, appeared to persuade mock jurors to acquit the defendant.

An archival study suggested that featural justifications accompany positive identifications in the real world approximately 30% of the time (Behrman & Richards, 2005). However, in theory, the lineup presented to the eyewitness should contain very similar people so that there would not be a distinguishing feature that would stand out for an eyewitness to use as a reason for his decision. This idea is the reason the informative condition was not a particularly strong distinguishing feature (such as the perpetrator had a tattoo on his face but the defendant does not). Additionally, this is the explanation for the *featural justification effect*. That is, no distinguishing feature should stand out in the lineup so that when one does use a featural justification, it decreases the perceived guilt of the suspect and the perceived accuracy of the eyewitness. However, as discussed in the *featural justification effect* literature, even in a fair lineup, the feature may appear more distinctive to someone who has seen the person and feature beforehand and, therefore, the eyewitness would provide that information to justify his identification decision.

Furthermore, a featural justification may hold more weight for non-identifications. As previous research suggests, not presenting participants with the lineup and merely hearing a featural justification for an identification does not decrease perceived accuracy and guilt because the given reason is taken at face value as an indeed distinctive feature (Dodson & Dobolyi, 2017). Study 2 did not present participants with a lineup, but with a non-identification, *any* justification is comparable to not having a lineup, as participants must take the eyewitness at his word as a distinctive feature. With this understanding, the reason surrounding the non-identification in Study 2 may help explain how the informative condition with a featural

justification is indeed helpful to participants and subsequently reduced guilty verdicts. However, Study 2 is not the same paradigm as the previous studies on this issue, as the featural justification literature focuses on positive identifications and only provides the identification to participants without any other evidence. Nevertheless, Study 2 provides some insight into how featural justifications could be used in a trial context and for non-identifications.

It is interesting to note that, consistent with the previous non-identification literature, there seems to be the need to make the non-identifications more salient in order to be considered and valued. In this study, including an informative explanation with the testimony gave the non-identification more weight to reduce guilty verdicts. Additionally, Leippe (1985) demonstrated that mentioning a non-identification did not reduce verdicts, but rather, *testifying* about the non-identification gave the evidence more weight. In the Smalarz et al. article (2019), the previous non-identification evidence was only considered reliable when participants saw the recorded lineup (as opposed to no recording of the non-identification decision). Even in the first McAllister and Bregman study (1986), non-identifications reduced the likelihood of guilt only when there were *two* non-identification eyewitnesses. Therefore, while the results of Study 2 align with some of the previous non-identification literature, it seems to be stemming from different means of bringing extra attention to the piece of evidence, just as Study 2 demonstrated. However, as described above, it is not any extra attention or salience that gives the non-identification more credence; rather, it is something that indeed provides more useful information to the evidence.

There are two outstanding issues that ought to be addressed. First, the two previous studies have focused on the impact of non-identifications on verdicts and likelihood of guilt ratings. Both of these measures take into account not only the non-identification but also other

case evidence as well. In short, they are indirect measures of the value jurors ascribe to the non-identifications. It would be appropriate to include direct measures of the probative value of non-identifications. Furthermore, without being provided a normative benchmark for how probative a non-identification ought to be, it is simply not possible to assess whether jurors are giving appropriate weight to the non-identification testimony. Both of these issues are addressed in Study 3.

Related to the observation that verdicts and likelihood of guilt ratings include case evidence, and that it is important to separate out the components that feed into these measures, it seems possible that the value of non-identifications depends on the other case evidence. In particular, that the evaluation of the non-identifications will be higher when the case evidence is weak and also suggests that the defendant is not the perpetrator, while the value of non-identification will be lower when the case evidence is strong and suggests the defendant is the perpetrator. In other words, jurors may be engaging in confirmation bias, where people interpret information that is consistent or partial to existing beliefs (Nickerson, 1998).

This possibility has been advanced as a post hoc explanation of previous findings. For example, McAllister and Bregman (1989) explained the discrepancy in findings between their study (1986) and the Leippe (1985) study, perhaps participants who hear a strong case against the defendant will not utilize the negative identification appropriately because it disconfirms their belief that the defendant is guilty. On the other hand, if participants hear a weak case against the defendant, they may utilize the non-identifications appropriately, confirming their belief and bias that the defendant is innocent. While this explanation from the previous literature is plausible and certainly worth exploring, these studies did not actually test for confirmation bias. These previous studies looked at the conviction rates and likelihoods of guilt to determine

jurors' utilization of a non-identification, which confounds the case evidence into a single measure so it is not possible to determine if the value ascribed to the non-identification changes, as opposed to the value of the entire case.

### **Study 3**

The objective of this study is twofold: first is to use a direct measure of the probative value jurors ascribe to a non-identification; second is to test the possibility that jurors engage in confirmation bias when assessing the probative value of a non-identification. To achieve these objectives, the design of this experiment differs from the previous studies in a couple of important respects, including explicitly providing jurors with a normative value or benchmark of probative value, and by manipulating both the strength of the case and the outcome of the eyewitness identification (positive or non-identification) to test the possibility that confirmation bias is occurring. Each of these factors is described in detail below.

#### **Explicitly Providing the Probative Value**

First, it would be beneficial to explicitly provide jurors with the quantified probative value of the eyewitness testimony to see if it indeed is utilized appropriately. Previous studies on non-identifications do not explain to jurors what the probative value of a non-identification is, which would inform how much weight the non-identification actually merits. As mentioned above, changes in true and false positive rates subsequently change the probative value of the test. Therefore, presenting jurors with the eyewitness testimony in conjunction with probability rates of accuracy (i.e., the probative value of the evidence) can provide insight regarding not only jurors' perceptions of the exculpatory value of a non-identification, but also if they are using the non-identifications appropriately.

#### **Confirmation Bias**

Secondly, jurors could engage in confirmation bias when assessing the probative value of the eyewitness evidence. Confirmation bias is defined as “seeking or interpreting of evidence in ways that are partial to existing beliefs, expectations, or a hypothesis in hand” (Nickerson, 1998 p. 175). Decades of research have demonstrated that people may selectively attend to information that is consistent with prior convictions and attitudes and/or downplay or avoid inconsistent beliefs. Nickerson’s review paper on the topic gives an example of discussions surrounding this phenomenon dating back to the 17<sup>th</sup> century. Wason conducted seminal studies in confirmation bias research that showed that people tend to suggest methods and seek information that merely conform their hypotheses instead of suggesting methods that would not conform to their hypotheses, to learn whether their hypotheses were indeed correct (Wason, 1960, 1968). Subsequent research demonstrated that people find arguments congruent with current beliefs more believable (Koehler, 1993). For example, people who supported the death penalty rated reports about the support of the death penalty higher quality than the reports against the death penalty, and the opposite occurred for those who oppose the death penalty (Lord, Ross, & Lepper, 1979). Additionally, confirmation bias research has indicated that people interpret scenarios and “cherry-pick” to remember specific information to support their perceptions of an event (Darley & Gross, 1983). Lastly, conversely related to supporting preexisting beliefs, people tend to avoid or downplay disconfirming evidence. Some argue that it is difficult to recall information that is inconsistent with one’s beliefs (Kleck & Wheaton, 1967; Koriat, Lichtenstein, & Fischhoff, 1980; Snyder & Uranowitz, 1978) but others suggest that people understate the usefulness of the refuting information if it does not conform to prior attitudes. Statements deemed “incompatible” are often scrutinized for longer, criticized more harshly, and judged to be

weaker compared to compatible statements (Edwards & Smith, 1993; Lord et al., 1979; Ross & Lepper, 1980).

Confirmation bias has been studied in various fields, such as economics (Rabin & Shrag, 1999) and medicine (Mendel et al., 2011), and jury research is no exception. Lawson (1968) suggested a primacy effect for jurors, meaning there is an advantage to present one's argument first because subsequent refuting arguments and evidence are less persuasive after hearing an initial argument. Carlson and Russo (2001) found that jurors interpreted new information through the lens of previously held stances. Relatedly, prior exposure to pretrial publicity influenced verdicts (Stebly, Besirevic, Felero, & Jimenez-Lorente, 1999), even if asked to ignore it (Fein, McCloskey, & Tomlinson, 1997). Rassin and colleagues found that jurors sought out more information that aligned with their initial assessment of the suspect's guilt, and their conviction rates were associated with seeking out incriminating evidence (Rassin, Eerland, & Kuijpers, 2010). Ask and Granhag (2005) claim that it is difficult to be open to other possibilities, even when there is a clear reason to believe the alternative scenario. In their study, participants were asked to rate the incriminating value of various observations from the police after hearing a woman was murdered but were told either that there was a clear motive or there may be another suspect. Participants viewed exonerating pieces of evidence equally in both conditions, indicating the difficulty to change course. Judges, too, have been found to engage in confirmation bias (Englich, Mussweiler, & Strack, 2005; de Keijser & Van Koppen, 2007; Rassin, 2020).

The Story Model, a commonly used theory for jury fact-finding, is inherently related to confirmation bias, in that the theory states that jurors construct a narrative using the evidence presented based on the evidence, their own knowledge of real-world events, and a general notion

of what constitutes a complete story. Then, the fact-finders adopt the story that is the most coherent (i.e., with fewest contradictions) and provides the broadest coverage of the evidence. The fewer alternative stories they create with the evidence, the more confident they are in their narrative. Fact-finders must often use their previous knowledge and/or embed inferences into the narrative in order to make it most coherent and cover the most ground, influencing the weight given to each piece of evidence (Pennington & Hastie, 1992, 1993).

Coherence-Based Reasoning complements this theory, as well as confirmation bias, by explaining the bidirectional process of assessing the evidence (Simon, 2004). The strength of the evidence facilitates the adoption of a story and ultimate decision, and simultaneously, the story and decision determine the credibility and reliability of the pieces of evidence. Essentially, pieces of evidence indirectly influence the perceived reliability of other pieces of evidence, even if the pieces of evidence are not at all related. Moreover, it appears that jurors are unaware of their coherence shift as they hear pieces of evidence. In fact, when some participants were presented with a compelling argument that ultimately made them switch their verdict, they were just as confident in their ultimate decision as those who remained consistent in their decision. Ultimately, one's beliefs change the perception of other pieces of evidence and interpret the evidence accordingly.

Therefore, with this understanding of confirmation bias, it is important to determine whether non-identifications are less compelling when embedded in disconfirming evidence—namely, a strong, incriminating case, or perhaps more compelling with confirming evidence—a weaker case. Previous non-identification literature has suggested that the strength of the case could influence the proper utilization of non-identifications, but did not actually test for it. The previous literature on non-identifications measured this effect through conviction rates and



overall likelihood of the defendant's guilt, but to truly test this claim empirically whether confirmation bias is occurring, it is necessary to assess the probative value of the eyewitness identification evidence.

The present study fundamentally addresses two questions: i) do jurors engage in confirmation bias when assessing eyewitness non-identification testimony; and ii) do jurors use the probative value of an eyewitness non-identification appropriately. Mock jurors will be presented with a trial summary that includes eyewitness testimony, render a verdict and assess the likelihood of the defendant's guilt, and answer questions that will assess their perception of the probative value of the testimony. Participants will also be explicitly provided with the likelihood ratio, indicating the usefulness of the eyewitness evidence.

### **Hypotheses**

This case strength manipulation provides the backdrop for how mock jurors incorporate the eyewitness identification. A positive identification in a strong case and a non-identification in a weak case could be easier to understand and incorporate into the narrative (i.e., preexisting beliefs). However, a positive identification in a weak case, and a non-identification in a strong case are inconsistent with the narrative, and jurors might not know how to reconcile this piece of evidence. And while normatively the strength of the case—namely, the other surrounding evidence—should not impact the probative value of an eyewitness identification or non-identification, the current study tests whether this is the case. The moderate case would allow an unbiased assessment of jurors' perception of the probative value. Namely, when the evidence is neither weak nor strong, the moderate case provides the opportunity to see the value of the non-identification unaffected by other compelling evidence towards guilt or innocence.

Additionally, providing the probative value with the eyewitness identification through an expert witness enables us to not only determine if participants engage in confirmation bias, but also to determine the magnitude of the confirmation bias (i.e., compare the difference in probative value of a positive identification between the strong and weak case conditions to the difference in probative value of a non-identification between the strong and weak cases). Given that the expert’s testimony provides the same likelihood ratio for both eyewitness conditions, one could potentially argue that there will be confirmation bias, but there will be equal differences in the directions that the probative value scores move based on the strength of the case. However, it is anticipated that the eyewitness evidence influences the magnitude of the confirmation bias. Because jurors could come up with many reasons for a non-identification, the magnitude of the confirmation bias and probative value (i.e., difference between the strong and weak evidence conditions for each identification type) is larger for a non-identification than a positive identification. These two hypotheses are visually depicted in Figure 4.3

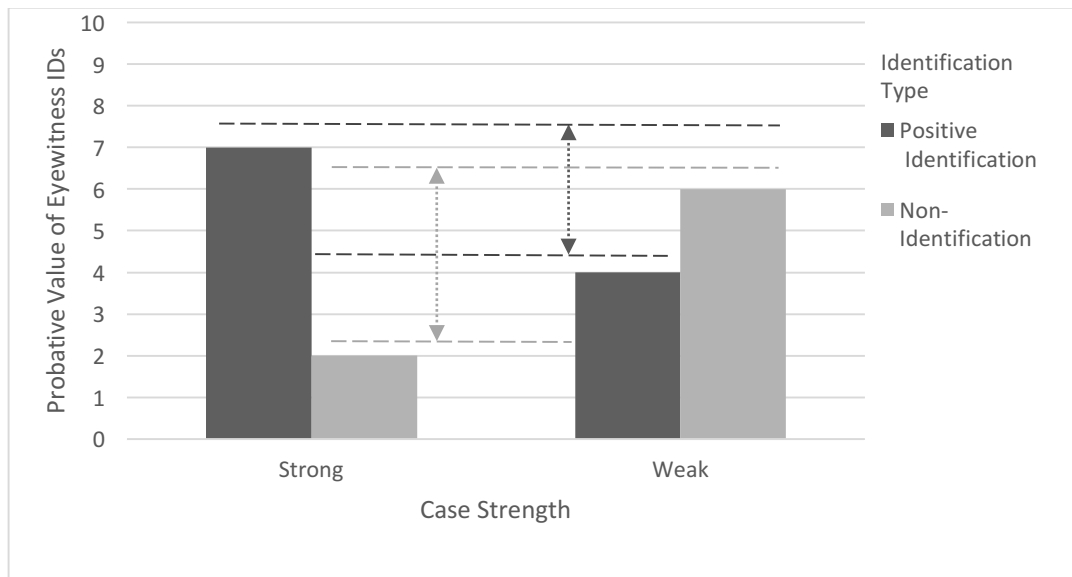


Figure 4.3. *Hypothesized Probative Value of the Eyewitness Testimony from Study 3. Arrow Bars depict “Magnitude Confirmation Score.”*

Ultimately, it is expected that there will be confirmation bias. Jurors will accord the non-identification greater exculpatory weight in the weak case compared to the strong and moderate cases. Similarly, in the strong case, the positive identification will be accorded more weight than the non-identification, and jurors will accord it more weight than the positive identifications in the other conditions. These results will be seen in perceived probative value scores. Furthermore, it is hypothesized that, even though the expert witness will provide the same likelihood ratio to support both positive and non-identification testimonies, the magnitude of the confirmation bias will be different. Namely, the difference in the perceived probative value of non-identifications between strong and weak cases will be greater than the perceived probative value of positive identifications between the strong and weak case. A non-identification in a strong case will not have as much perceived probative value as a positive identification in a weak case, leading to the difference in the magnitude of confirmation bias.

## **Participants**

Participants were recruited online from TurkPrime. Using TurkPrime's pro features, participants who identified as a U.S. citizen and an age of 18 years or older on their worker profile were presented with the study to recruit jury eligible participants (they were subsequently asked about their jury eligibility within the study too). Seven hundred forty-nine participants started the study. After removing those who did not complete the study ( $n = 54$ ), failed the attention check ( $n = 14$ ), and took the study in under 200 seconds ( $n = 39$ , presumably bots infiltrating the study; Moss & Litman, 2018) 642 participants were left in the sample.

The median age was 36 years old ( $IQR = 17$ ), and the sample was composed of 37% of participants identifying as male ( $n = 236$ ). The sample was predominantly Caucasian (71.7%,  $n = 460$ ); 11.2% identified as Black or African-American ( $n = 72$ ), 6.4% as Hispanic or Latinx ( $n =$

41), 3.4% as Asian ( $n = 22$ ), 1.1% as Native American ( $n = 7$ ), one participant identified as a Pacific Islander, and 6% listed themselves as mixed, and listed up to 5 different ethnicities from the above list. The political affiliation was divided into 38% liberal ( $n = 248$ ), 17% conservative ( $n = 227$ ), 21% independent ( $n = 137$ ), and the rest listed an “other” political affiliation. Only 20.9% of participants had ever served on a jury before ( $n = 134$ ), and 39.6% of participants have taken part in jury decision-making research ( $n = 254$ ).

### **Procedure and Design**

The study is a 3x2 fully-crossed between-participants factorial design, manipulating the strength of the case (3: strong or moderate or weak) by eyewitness identification (2: positive identification or non-identification). Regarding the strength of the case, jurors read the same Grand Theft case used in Studies 1 and 2, modified to be a compelling case against the defendant (strong), a moderate case which has some circumstantial evidence of the defendant’s guilt, or a weak case, in which the only evidence against the defendant is the evidence pertaining to the eyewitness testimony. While this last condition would normally serve as mainly the control group, as it is not influenced by any surrounding evidence and one could evaluate the probative value of the evidence without any other evidence, the lack of other pieces of evidence inherently becomes a weak case against the defendant. In the strong and moderate cases, the pieces of evidence were the same but described in a more incriminating or circumstantial way. For example, the color of the car on the camera matched the defendant’s car. In the strong case, the license plate on the camera matched the license on defendant’s car, while in the moderate case, the license plate on the camera was smudged and could not be determined. All materials can be found in the Appendix.

Additionally, the pieces of evidence in the strong and weak conditions were randomized to avoid any order effects that could generate from hearing specific evidence in a particular order. The issue of order effects is directly relevant to confirmation bias, as it is argued that the evidence one hears first could create the belief or attitude that will ultimately be difficult to change (Lawson, 1968; Nickerson, 1998). Additionally, according to the story model, hearing the evidence in chronological or story causal order helps facilitate constructing that particular narrative, further demonstrating a confirmation bias as one hears each piece of evidence (Pennington & Hastie, 1992, 1993). Conversely, Dahl and colleagues (2009) highlighted that non-identifications at the investigator level were not utilized appropriately if presented first with subsequently strong conflicting evidence. Therefore, to control for either framework potentially having an effect on the eyewitness evidence, the six pieces of evidence, including the eyewitness evidence, were presented in random order.

With respect to the eyewitness identification, the eyewitness, Mark Richards, either testified that he made a positive identification of the defendant, Dan Thompson, or a non-identification. After hearing the testimony, an expert witness, Dr. Chase, testified to provide the probative value of the type of identification. The expert witness testimony always followed the eyewitness testimony. In Dr. Chase's testimony, he stated that he wanted to see the likelihood of the eyewitness making an error. This testimony is important because it informs jurors of the probative value of the identification. He recreated the exact same situation that the witness was under (e.g., same spot) and had 100 people watched the staged crime, adhering to the facts of the case identically. Fifty of the 100 people watched the staged crime with the defendant as the perpetrator running away from the scene. The other 50 people watched the staged crime with someone else with similar physical characteristics running away from the scene. All 100 people

were unaware of who the defendant was, and all were administered a lineup to determine whether the perpetrator was in the lineup. The lineup presented to these 100 people always had the defendant in the lineup.

Based on the experimental condition, the expert explains the likelihood ratio of correctly identifying the suspect or correctly rejecting the lineup. He concludes that if a person makes a particular identification (positive identification or non-identification), it is *5 times more likely* that the identification testimony is correct rather than incorrect. This is how participants are explicitly provided the probative value of the eyewitness evidence. Again, without it, there is no way to evaluate the usefulness appropriately. Participants are being explicitly told that it can be useful information, and how useful it is. The expert testimony is as follows:

The next witness to testify was Dr. Chase, a psychologist who studies eyewitness identification. Dr. Chase testified that he was brought in to determine the likelihood that Mark Richards [accurately identified/did not identify] Dan Thompson as the man he saw in the office that evening. To do this, Dr. Chase conducted a study that simulated the situation Mark Richards was in in the office that evening. Dr. Chase explained that he recreated the scene of the crime in the office. He recruited 200 participants from the community to stand where Mark Richards saw a man rush out of the office. Half of the participants saw Dan Thompson as the man who rushed out of the office, and half of the participants saw another man who looked similar to Dan Thompson. The participants were then asked to review a lineup. Everyone was presented with a line-up that included Dan Thompson, along with 5 other individuals. Recall, half of the participants in Dr. Chase's study saw Dan Thompson rush out of the office and the other half did not. For the participants who saw Dan Thompson rush out of the office, a correct response would be to identify Dan Thompson as the man they saw during the study. This is referred to as a "**Positive Identification.**" For the participants who did not see Dan Thompson rush out of the office (they saw a similar looking man), a correct response would be to state that the man they saw during the study is NOT in a line-up. This is referred to as a "**Non-Identification.**" Based on the findings of the study, Dr. Chase concluded that a [positive identification/non-identification] is *5 times more likely* to be correct than incorrect. Therefore, he testified that given the [positive identification/non-identification] by Mark Richards, it is *5 times more likely* that his identification of the defendant, Dan Thompson, is correct rather than incorrect.

Mock jurors were then given judicial instruction and asked to render a verdict, provide the likelihood that the defendant is guilty (0-100% scale), as well as indicate the probative value of

the identification. To assess the probative value, there were a series of questions rating the reliability and credibility of the eyewitness on 1-7 Likert scales to create a composite score.

These questions were:

How believable is Mark Richards's (non-)identification (that the defendant was *(not)* the person Mark Richards saw in the office that night)?

What is the likelihood that Mark Richards made an honest mistake when he said that the defendant was *(not)* the person he saw in the office that night?

What is the likelihood that Mark Richards was lying when he said that the defendant was *(not)* the person he saw in the office that night?

How good was Mark Richards's view of the event?

After reverse coding the applicable probative value questions, a composite score was created to determine the probative value of the eyewitness evidence. Cronbach's alpha was .75 for positive identifications and .65 for non-identifications. Additionally, mock jurors were asked to determine the likelihood ratio of the eyewitness evidence they heard: participants gave the likelihood that the eyewitness is correct given the type of identification about which he testified, as well as gave the likelihood that the eyewitness is incorrect given the type of identification about which he testified.

## **Results**

Table 4.1 contains participants' verdicts, likelihoods of guilt, probative value scores and likelihood ratio scores.

Table 4.1. Means (SDs) of Verdict, Likelihood of Guilt, Probative Value Score, and Likelihood Ratio Score by Experimental Condition

	Verdict			Likelihood of Guilt			Probative Value Score			Likelihood Ratio Score*		
	ID	Non-ID	Marginal	ID	Non-ID	Marginal	ID	Non-ID	Marginal	ID	Non-ID	Marginal
<b>Strong</b>	.71 (.476)	.18 (.389)	.45	79.25 (20.64)	47.55 (26.32)	63.40	5.48 (1.14)	5.06 (1.06)	5.27	12.53 (24.67)	12.13 (26.01)	12.33
<b>N</b>	103	109		103	109		103	109		96	104	
<b>Moderate</b>	.44 (.499)	.10 (.306)	.27	67.70 (23.54)	40.14 (23.72)	53.92	5.01 (1.08)	5.17 (1.08)	5.09	6.08 (11.83)	6.74 (14.32)	6.41
<b>N</b>	108	106		108	106		108	106		101	96	
<b>Weak</b>	.34 (.476)	.12 (.332)	.23	62.19 (26.62)	28.88 (25.34)	45.54	4.94 (1.16)	5.67 (.88)	5.31	5.81 (14.28)	8.62 (18.17)	7.22
<b>N</b>	112	104		112	104		112	104		103	92	
<b>Marginal</b>	.50	.13	.32	69.71	38.86	54.27	5.14	5.30	5.17	8.14	9.16	7.85

\*Ns are different for Likelihood Ratio Score because outliers have been removed for analysis.

**Verdicts.** Overall, 31.6% voted to convict the defendant. A binary logistic regression was conducted to assess the variables on verdict ( $\chi^2(3) = 127.07, p < .001$ ). With regard to experimental conditions, the main effects of strength of case and eyewitness identification evidence were significant ( $ps < .001$ ), but the interaction was not significant ( $p = .08$ ). A strong case increased the likelihood of a guilty verdict compared to the moderate ( $Exp(B) = .308, CI [.194, .487], Wald \chi^2(1) = 25.17$ ) and weak cases ( $Exp(B) = .402, CI [.256, .630], Wald \chi^2(1) = 15.81$ ), and a positive identification increased the likelihood of a guilty verdict ( $Exp(B) = 6.87, CI [4.59, 10.29], Wald \chi^2(1) = 87.75$ ).

**Probative value.** Figure 4.4 depicts the perceived probative value of the eyewitness testimony by case strength. A composite score was created from the questions assessing how participants perceived the probative value. An increase in probative value scores indicates an increase in the usefulness of the evidence. Therefore, an increase in probative value scores for a positive identification is indicative of an increase in usefulness towards the defendant's guilt, while an increase in probative value scores for a non-identification is indicative of an increase in the defendant's innocence.



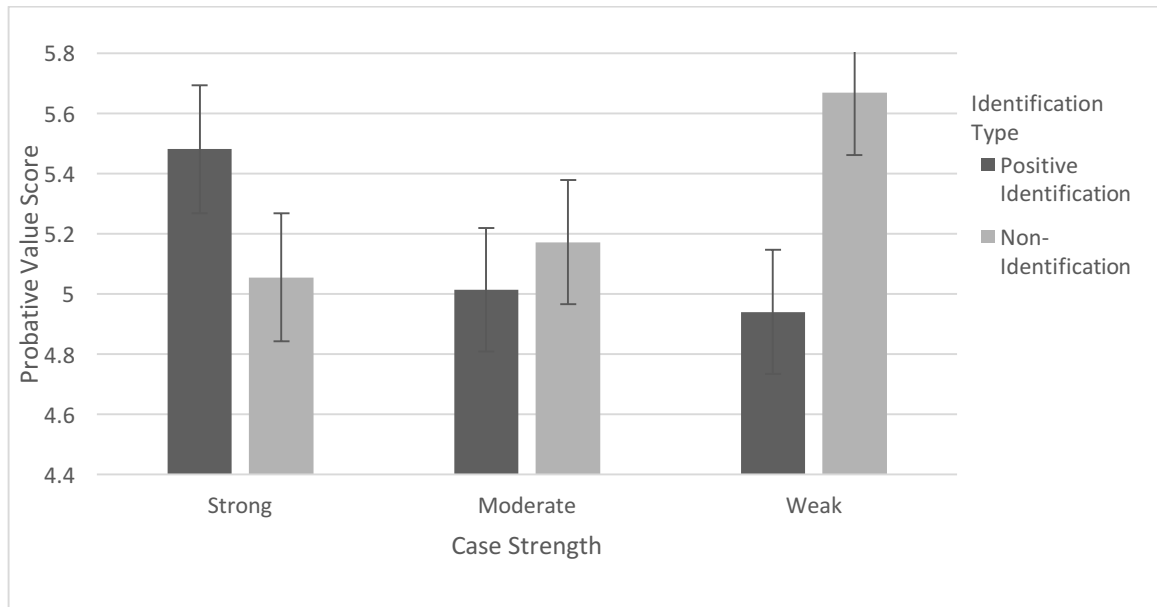


Figure 4.4. Probative Value of the Eyewitness Testimony from Study 3 by Case Strength. Error Bars are the 95% Confidence Interval.

A two-way ANOVA with the composite probative value score as the dependent variable indicated no significant main effects for strength of case ( $F_{case}(2, 636) = 2.47, p = .95$ ) nor eyewitness testimony ( $F_{ID}(1, 636) = 3.29, p = .07$ ), but a significant interaction effect ( $F_{case*ID}(2, 636) = 15.450, p < .001, partial \eta^2 = .046$ ). That is, the impact of the strength of the case or the eyewitness testimony on their own did not impact the perception of the eyewitness evidence. Rather, the perception of the probative value is dependent on both factors. In the strong case, while the probative value of the positive identification ( $M = 5.48, SE = .105$ ) is given more weight than the non-identification ( $M = 5.06, SE = .103$ ), this difference was not statistically significant, but trending towards significance ( $p = .06, d = .038$ ). In the moderate case, the probative value scores of each eyewitness evidence were almost identical ( $M_{ID-moderate} = 5.014, SE = .104, M_{NonID-moderate} = 5.17, SE = .103$ ) and not statistically significant ( $p = 1.00, d = .148$ ). However, there is a significant difference between the positive identification ( $M = 4.94, SE = .101$ ) and the non-identification ( $M = 6.67, SE = .105$ ) in the weak case ( $p < .001, d = .706$ ). In

other words, in the weak case, the non-identification is attributed greater weight compared to the positive identification.

Looking at the “Magnitude Confirmation Score” the difference in probative value between the positive identification in the strong and weak cases is significant ( $p = .004$ ), as well as the difference in probative value between the non-identification in the strong and weak case ( $p < .001$ ). While the greater difference between the strong and weak cases is in the non-identification conditions (.61 vs. .54), this difference is not statistically significant.

The overall likelihood of guilt of the defendant significantly correlated with probative value scores. As the likelihood of guilt increased, probative value scores for positive identifications increased ( $r = .57, p < .001$ ) and probative value scores for non-identifications decreased ( $r = -.55, < .001$ ).

**Likelihood ratio.** As previously mentioned, the likelihood ratio is another way to determine the probative value of the identification, which is influenced by the true and false positive/negative rates. Participants’ personal likelihood ratio was computed separately for positive identifications and non-identifications. For positive identifications, the likelihood ratio was calculated by dividing participants’ responses to the probability that given the positive eyewitness evidence they heard, what is the likelihood that he made a correct identification decision, by the likelihood that he made an incorrect decision. Essentially, it is the likelihood of a true positive divided by the false positive. This calculation would indicate that an increase in likelihood ratio scores is an increase in the odds of an accurate positive identification, suggesting the defendant is the perpetrator.

For non-identifications, the likelihood ratio was calculated by dividing participants’ responses to the probability that given the non-identification they heard, what is the likelihood

that the eyewitness did not see the defendant, by the probability that given the non-identification that the eyewitness did, in fact, see the defendant. In other words, it is the likelihood of a true negative by the false negative. This calculation would indicate that an increase in likelihood ratio scores is an increase the odds of an accurate non-identification, suggesting the defendant's innocence. Participants were excluded from the analysis ( $n = 50$ ) if they indicated that their likelihood ratio for the identification decision was greater than 100 times more likely to be correct, as these were outliers that unfortunately made the results uninterpretable.

Participants' likelihood ratios correlated with probative value scores. Namely, as probative values scores increased, so did their likelihood ratio scores, and, therefore, their perception of the usefulness of the identification evidence ( $r = .28, p < .001$ ). This correlation stood for both positive identifications ( $r = .36, p < .001$ ) and negative identifications ( $r = .23, p < .001$ ).

A two-way ANOVA indicated that the main effect of strength of the case impacted the likelihood ratio scores ( $F(2, 586) = 5.66, p = .004, partial \eta^2 = .019$ ), but not the identification evidence ( $F(1, 586) = .428, p = .513$ ) nor the interaction ( $F(2, 586) = .364, p = .695$ ). The strong cases had significantly higher likelihood ratio scores ( $M = 12.33, SE = 1.35$ ) compared to the moderate cases ( $M = 6.41, SE = 1.355, p = .002, d = 4.39$ ) and weak cases ( $M = 7.219, SE = 1.364, p = .008, d = 3.77$ ).

Likelihood ratio scores also correlated with the overall likelihood of guilt. As likelihood ratio scores for positive identifications increased, so did the overall likelihood of guilt ( $r = .26, p < .001$ ). Similarly, as likelihood ratio scores for non-identifications increased (again, indicating a stronger piece of evidence towards innocence), there is a decrease in overall likelihood of guilt ( $r = .126$ ).

## Discussion

The results of Study 3 demonstrate that there is indeed a confirmation bias occurring, as hypothesized. The probative value scores were dependent on both the strength of the case as well as the type of eyewitness evidence heard. Interestingly, in the moderate case, the probative value scores were nearly identical, indicating that jurors perceived the probative value scores similarly in this in-between case. However, contrary to the hypothesis, the magnitude of the confirmation bias between each identification type was not statistically significant. Nevertheless, it is clear that when a non-identification is situated within a weak case, compared to a strong case, the non-identification is perceived with greater weight, consistent with confirmation bias literature (Nickerson, 1998).

Additionally, participants were asked about the likelihood that the eyewitness saw the defendant, and the likelihood that the eyewitness *did not* see the defendant as the perpetrator, given the eyewitness testimony they heard. This is how one could calculate participants' individual likelihood ratios, which, as mentioned previously, is the probative value of the evidence. Personal likelihood ratio scores correlated with probative value scores demonstrating a consistency in how participants perceived the eyewitness evidence.

However, the likelihood ratio scores did not follow the same pattern as the probative value scores when analyzing the variables. There was no significant interaction between strength of the case and eyewitness evidence, nor did likelihood ratios differ on the basis of eyewitness identification evidence. In fact, the likelihood ratio between the two types of identification testimony were almost identical for each strength of case condition. Rather, likelihood ratio scores differed significantly on the strength of the case. If the case were a strong case, the eyewitness evidence, regardless of type, was given a higher likelihood ratio score compared to

the moderate and weak cases. While, at first glance, it may be encouraging to see that the likelihood ratio scores did not differ on the basis of the type of eyewitness identification decision, it is a bit strange to see the strength of the case impacting likelihood ratio scores in the manner in which they did. A compelling case against the defendant should not *increase* the likelihood that the non-identification evidence is particularly strong, compared to the other cases.

It is possible that participants may not have understood the question, despite attempts to explain the question as clearly as possible. By asking participants about their likelihood ratio in this manner, the idea was to get an implicit measure of their perception of usefulness of the evidence without asking them specifically. They were not asked directly as the probative value composite score did. Generally, a Bayesian approach can often be difficult to understand (Kahneman & Tversky, 1972; de Keijser & Elffers, 2012; Gigerenzer & Hoffrage, 1995; Koehler & Macchi, 2001) and so it is quite possible that the question was confusing and, unfortunately, not assessing what was intended.

### **General Discussion**

Previous literature on non-identifications has demonstrated empirically that non-identifications have probative value. However, little research has been conducted on whether jurors appreciate this notion, and the scant research on the topic has some methodological concerns. The three present studies improve on the previous studies methodologically, while also expanding the literature to evaluate the probative value of non-identification testimony.

Study 1 analyzed whether the type of eyewitness identification impacted verdicts, testing directly what has been explored in the previous literature with a larger sample of jury-eligible participants. Simply providing non-identification testimony did not appear to impact verdicts. However, Study 2 tested whether explaining the basis of the non-identification would give the

non-identification greater weight. While an uninformative explanation did not have an effect on verdicts, non-identifications did have an impact on reducing verdicts when accompanied by an informative explanation. These two studies revealed that jurors are not sensitive to non-identification testimony when rendering a verdict unless an informative explanation is provided. These results confirmed some of the research previously conducted on non-identifications, that jurors can utilize non-identifications appropriately, particularly when there is an extra (and valid) emphasis on the non-identification—such as an informative explanation—that accords the non-evidence the more weight.

Another suggestion from the previous non-identification literature states that the strength of the case could influence the perception of the evidence, in that it is difficult to consider non-identification evidence appropriately if the surrounding evidence against the defendant is strong, but easier to consider if the surrounding evidence is weak. Namely, that the non-identification evidence is subject to confirmation bias. This is related to the idea that added emphasis on non-identifications accords it greater value, in that the weak surrounding evidence brings attention to the non-identification as useful testimony. However, despite this interesting suggestion, the previous non-identification studies did not directly test this issue because one would need a measure of probative value to test this claim empirically. Additionally, explicitly telling jurors about the probative value of the eyewitness evidence provides grounding for understanding if confirmation bias occurs. The previous literature did not explain to jurors that non-identification evidence is useful, which would inform how much weight the evidence should indeed merit. Without it, one cannot assess the participants' perceptions of the evidence. Therefore, Study 3 explored these two elements of non-identification perceptions to determine if the use of non-identifications is subject to confirmation bias. This question was assessed using a direct measure

of probative value while also using appropriate study design to enhance and contribute to the existing literature.

Participants were asked to read a synopsis of a trial, render a verdict and determine the likelihood of guilt, and asked about their perceptions of the probative value of the eyewitness identification evidence. Participants were explicitly told the probative value of the eyewitness evidence through expert witness testimony providing the same likelihood ratio for both positive identifications and non-identifications. Therefore, there should not have been any significant difference in the perception of how useful the eyewitness evidence is, as they know how useful it is and other pieces of evidence should not influence the probative value of any particular evidence. However, it was expected that the strength of the case would not only influence how useful the eyewitness evidence is perceived, but also that it would influence the particular eyewitness testimony differently. Namely, not only would a positive identification in the strong case and a non-identification in a weak case be viewed as more probative compared to their opposite, inconsistent cases, but also that the difference would be different based on the type of eyewitness evidence the mock jurors heard. Therefore, there would be a confirmation bias by incorporating the eyewitness testimony differently, and that jurors would not appear to use non-identification evidence appropriately.

The main hypothesis of confirmation bias in Study 3 was supported: The probative value of the eyewitness evidence depended on the strength of the case and the type of eyewitness evidence. For probative value scores, while in the moderate case participants found the evidence similarly useful, a positive identification in a strong case was viewed as significantly more probative than a positive identification in a weak case, and the non-identification in the weak case was viewed as more probative than a non-identification in a strong case. This indicates that

mock jurors are engaging in confirmation bias and not using the eyewitness evidence properly. Participants did not perceive the usefulness of the eyewitness testimony consistently across cases despite: i) explicitly being told that the evidence is useful; ii) they were provided with the same likelihood ratio for both types of eyewitness evidence; and iii) other pieces of evidence should have no impact on the probative value of any other piece of evidence. It appears that the surrounding evidence creates that additive attention that strengthens the non-identification evidence and accords it more probative value. While this may indicate irrational and inappropriate utilization of a compelling element (i.e., the strength of the case) that brings much more attention to the non-identification, it is consistent with the confirmation bias literature. However, the fact that the value of the non-identification changes with surrounding evidence is troublesome, as one would hope that jurors would assess the evidence appropriately to determine the likelihood of the defendant's guilt. More research must be conducted on how to not only perceive non-identifications as useful, but appropriately useful, given the circumstances and evidence that surround the case.

Ultimately, it is important to understand that actors in the criminal justice system, such as judges and attorneys, should not assume that non-identifications are not probative—indeed they are. But these actors should also not assume that if non-identification testimony is presented to jurors that jurors will understand their potential value to the case. Additionally, despite sharing the potential value, other factors can contribute to understanding its probative nature.

### **Limitations and Future Directions**

The usual limitations associated with controlled laboratory experiments apply (see Diamond, 1997; Wiener, Krauss, & Lieberman, 2011). In brief, participants read a synopsis of a criminal trial and rendered a verdict without deliberation. Though the ecological validity may seem



compromised, a recent meta-analysis found no difference between video and written stimuli (Bornstein et al., 2017), and other studies have demonstrated that jury deliberation may change the dynamics of the conversation but typically not the verdicts (see Devine, Clayton, Dunford, Seying, & Pryce, 2001). There is other research, however, that shows differences in individual and group verdicts (Lynch & Haney, 2009), such as a “leniency bias” when jurors deliberate (e.g., MacCoun & Kerr, 1988). Therefore, assessing the change in confirmation bias with mock jury deliberations could contribute to the mixed literature surrounding whether group deliberations and decisions generally exacerbate or attenuate biased decision making compared to individual decision making (e.g., Kerr, MacCoun, & Kramer, 1996). Furthermore, having mock jurors deliberate with each other could potentially improve both the understanding of “non-evidence” as evidence—such as non-identifications—and its perceived utility.

Additionally, participants recruited from TurkPrime may not be representative of any particular population, although these participants are likely to be more representative of the average juror than studies that only use undergraduate participants (Buhrmester, Kwang, & Gosling, 2011). Studies that have been conducted using participants recruited from Mechanical Turk have replicated other psychological findings and effects (Crump, McDonnell, & Gureckis, 2013) as well as psychology and law research findings (Irvine, Hoffman, & Wilkinson-Ryan, 2018). Lastly, many argue that it is difficult to determine the attentiveness as well as the eligibility of participants when conducting studies online (Young & Young, 2019). Many “best practices” have been put in place, such as attention checks, indicating in the consent form the appropriate time to take the study, and removing participants from the study who took the study incredibly fast (presumably bots; see Young & Young, 2019). These limitations should be kept in mind when considering the practical implications of the data reported.

Additionally, while there was an interaction effect for the probative value scores, it did not seem to play a role on verdict rates. The conditions indicated that the main effects of case strength and eyewitness evidence influenced verdicts but not the interaction. On the one hand, it is helpful to know that trying to assess the usefulness of positive identifications and non-identifications cannot be assessed strictly through verdicts, and measuring the probative value of non-identification evidence is an important step in determining confirmation bias and perceptions of the evidence. On the other hand, the goal of a trial ultimately is to convict or acquit the defendant. While it is encouraging to see that stronger/more compelling cases against the defendant generate more guilty verdicts, and it is reasonable to assume that verdicts in the positive identification conditions compared to non-identifications would generate more guilty verdicts in each type of case, it appears that there may be a floor effect with respect to verdicts in the study. This is not only because none of the guilty verdict rates in the non-identification evidence were significant, but also because the highest conviction rate in the strong non-identification case was 18%, significantly lower than the weak case with a positive identification.

It is interesting to note, however, that previous non-identification studies have also found that despite the perceived utility of non-identifications in certain circumstances, perceived utility did not translate into verdicts (e.g., Smalarz et al., 2019; Pozzulo & Dempsey, 2009; Pozzulo & O'Neil, 2012). In addition to studying how jurors perceive non-identifications and the extent to which they are perceived appropriately, it is also worth exploring how the use of non-identifications influences verdicts and how to encourage its use. Jurors must not only perceive the non-identification evidence as useful, but also subsequently utilize it appropriately when rendering a verdict. Participants may find the non-identification evidence useful, but perhaps the context of a case, including applicable jury instructions or conviction threshold levels (e.g.,

beyond a reasonable doubt), may influence how one ultimately renders a verdict with the evidence at hand. Future research could look into how the context of a trial influences the usage of non-identification evidence.

Similarly, it would be beneficial to explore how attorneys and investigators utilize non-identifications outside of the trial experience, not only to understand how non-identifications appear out of a trial context, but also because if attorneys and investigators do not appreciate the threshold relevance of non-identifications, that evidence will never be brought to trial. Moreover, in *Brady v. Maryland* (1963), the U.S. Supreme Court ruled that the government must disclose materially exculpatory evidence in its possession to the defense. If prosecutors fail to recognize the importance of non-identifications, they may fail to include non-identification testimony in subsequent Brady disclosures. This would deprive the defense of potentially critical mitigating or exculpatory evidence. There is some research that suggests that investigators do not distinguish non-identifications from “I’m not sure” responses (e.g., Behrman & Davey, 2001), which would make utilizing non-identifications appropriately very difficult for investigators and attorneys. Furthermore, because most cases do not go to trial (Rakoff, 2017; U.S. Sentencing Commission, 2016), exploring whether district attorneys use non-identifications when determining charges, dismissals, and plea offers can shed light on how non-identifications might be used most often.

Future research in the trial context might also examine the other pieces of exonerating evidence to determine if there is a difference in confirmation bias between different forms of exonerating evidence, such as general exonerating evidence vs. non-evidence (i.e., a non-identification). Confirmation bias may be at play with other pieces of incriminating or exonerating evidence, but the non-identification may not be perceived in the same manner. Additionally, while this study randomized the evidence in order to avoid any order effects, it

would be important to explore if, and how, the evidence order influences the perceptions of non-identifications. Though the surrounding evidence in Study 3 was ambiguous and not particularly strong (as evidenced from the low overall conviction rate), the evidence was presented in random order to prevent the possibility of creating a strong perception of guilt before hearing about the non-identification. However, in the criminal justice system, the prosecution always presents their evidence first, which implies that incriminating evidence will invariably precede non-identification testimony (as a standard non-identification would be used for the defense) and create the possibility of discounting this evidence due to confirmation bias. Therefore, understanding whether the procedural nature and structure of a trial can influence how a non-identification is subsequently perceived would be crucial, while also increasing the ecological validity. Finally, expanding these findings to venire jurors with video of a trial and deliberations among participants could also increase the ecological validity of the studies (Scurich, 2018). All of these suggestions would not only enhance the confirmation bias literature, but also the eyewitness (non-) identification literature.

### **Conclusion**

The studies contribute to the very small and mixed non-identification literature by addressing some methodological concerns, as well as confronting non-identifications from a different angle to enhance our understanding of the perceptions of the probative value of non-identifications. Non-identifications are probative of the defendant's innocence, yet are not intuitively perceived as probative by jurors. In order for this form of evidence to have a strong impact, they must be sufficiently explained or surrounded by similarly conforming evidence, as the evidence is subject to confirmation bias. While the hope is that jurors make rational decisions when assessing the evidence, the present studies reveal that more work needs to be conducted on

how jurors can rationally perceive non-identifications as useful and make well-informed decisions. The present studies provide a necessary stepping stone to enhance the non-identification literature and incorporate it into the broader eyewitness literature overall.

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## APPENDIX: Materials (Study 3)

Materials were adapted from Simon, Snow, and Read (2004), Simon and Scurich (2011), and Teitcher and Scurich (2017).

### I. TRIAL SUMMARY

You will now read a summary of a criminal trial. Please read carefully as you will be asked to render a verdict and answer questions based on the evidence presented at trial.

In this case, Dan Thompson was indicted on one count:

(1) *Grand theft* of \$5,200 from the safe of Capitol Building Inc.

In California, *grand theft* is defined as taking possession of property valued at over \$950 that is owned by someone else.

The defendant -- Dan Thompson -- has pleaded not guilty to the charge.

The fact that a criminal charge has been filed against the defendant is not evidence that the charge is true. You must not be biased against the defendant just because he has been arrested, charged with a crime, or brought to trial.

A defendant in a criminal case is presumed to be innocent. This presumption requires that the People prove a defendant guilty beyond a reasonable doubt.

In deciding whether the People have proved their case beyond a reasonable doubt, you must impartially compare and consider all the evidence that was received throughout the entire trial. Unless the evidence proves the defendant guilty beyond a reasonable doubt, he is entitled to an acquittal and you must find him "Not Guilty."

There will be no deliberation with other jurors.

All witnesses have been warned that false testimony could result in a criminal prosecution for perjury.

You will now be presented with the evidence in the case. Later on, you will be asked some questions about the case.

Dan Thompson is thirty-four years old. He is married and has two children. He works as a supervisor for Capitol Building Inc., a large construction company.

As a supervisor, Mr. Thompson's job is to oversee the progress of construction projects and to coordinate the different work teams involved.

Mr. Thompson is generally regarded as a hard worker. His co-workers describe him as a reserved guy who, at times, can be pretty moody.

At the end of every day, the company's bookkeeper places all of the company's cash in a safe. The safe is located in the back of the bookkeeper's office.

<b>STRONG</b>	<b>MODERATE</b>
The safe is used also for safeguarding other kinds of sensitive information, including pending bids and project reports. In addition to the bookkeeper and her assistant, the safe is accessed by the supervisors, senior sales people, and executives. In total, about 12 people, including Dan Thompson, have access to the safe.	The safe is used also for safeguarding other kinds of sensitive information, including pending bids and project reports. In addition to the bookkeeper and her assistant, the safe is accessed by the supervisors, senior sales people, and executives. In total, about 50 people, including Dan Thompson, have access to the safe.

The safe has a timing mechanism that records the time and date every time it is opened and closed.

One morning, the company's bookkeeper discovered that the company safe was left open and that all of the cash was removed. Records indicate that \$5,200 was removed.

The timing mechanism showed that the safe was last opened the previous night at 7:08 PM. At that time, the office was usually deserted.

No biological evidence or fingerprints were recovered from the crime scene.

**EVIDENCE 1:**

A key witness was a computer technician, Mark Richards, who was called in to repair a printer in one of the offices adjacent to the bookkeeper's office.

Mr. Richards' testimony took up about half the trial. He came across as a thorough and conscientious person.

Mr. Richards testified that sometime around 7:10 PM, he saw a person rushing out of the bookkeeper's office. He approached that person to ask where the toner cartridges were stored. The two men exchanged a few sentences.

Mr. Richards stated that the exchange with the person took about two minutes. During that time, the men were within ten feet away from each other. He noticed that the person seemed tense, and had a sweaty forehead.

Mr. Richards stated that the lighting was good, and that he got a very good look at the person. Following the exchange, the person left the office in a hurry.

Mr. Richards testified that he was contacted by the investigating officer and was told that a suspect was in custody. Mr. Richards was asked to view a line-up of a potential suspect. The lineup included six people, one of whom was Dan Thompson.

ID	NON-ID
<p>Mr. Richards confidently identified Dan Thompson as the person he saw that evening in the office.</p>	<p>Mr. Richards confidently stated that the person he saw in the office that evening was <i>not</i> in the lineup.</p>
<p>When asked by the prosecutor if he was sure that the man he saw was Dan Thompson, Mr. Richards responded "I am absolutely certain that he is Dan Thompson. There is no doubt in my mind."</p>	<p>When asked if he was sure that the man he saw was not in the lineup, Mr. Richards responded, "I am absolutely certain that the person is <i>not</i> there. There is no doubt in my mind."</p>
<p>The next witness to testify was Dr. Chase, a psychologist who studies eyewitness identification.</p>	<p>The next witness to testify was Dr. Chase, a psychologist who studies eyewitness identification.</p>
<p>Dr. Chase testified that he was brought in to determine the likelihood that Mark Richards accurately identified Dan Thompson as the man he saw in the office that evening. To do this, Dr. Chase conducted a study that simulated the situation Mark Richards was in the office that evening.</p>	<p>Dr. Chase testified that he was brought in to determine the likelihood that Mark Richards accurately <i>did not</i> identify Dan Thompson as the man he saw in the office that evening. To do this, Dr. Chase conducted a study that simulated the situation Mark Richards was in when he was in the office that evening.</p>
<p>Dr. Chase explained that he recreated the scene of the crime in the office. He recruited 200 participants from the community to stand where Mark Richards saw a man rush out of the office.</p>	<p>Dr. Chase explained that he recreated the scene of the crime in the office. He recruited 200 participants from the community to stand where Mark Richards saw a man rush out of the office.</p>
<p>Half of the participants saw Dan Thompson as the man who rushed out of the office, and half</p>	<p>Half of the participants saw Dan Thompson as the man who rushed out of the office, and half</p>

<p>of the participants saw another man who looked similar to Dan Thompson.</p> <p>The participants were then asked to review a lineup.</p> <p>Everyone was presented with a line-up that contained Dan Thompson, along with 5 other individuals.</p> <p>Recall, half of the participants in Dr. Chase’s study saw Dan Thompson rush out of the office and the other half did not.</p> <p>For the participants who saw Dan Thompson, a correct response would be to identify Dan Thompson as the man they saw during the study. This is referred to as a “Positive Identification.”</p> <p>For the participants who did not see Dan Thompson (they saw a similar looking man), a correct response would be to state that the man they saw during the study is NOT in a lineup. This is referred to as a “Non-Identification.”</p> <p>Based on the findings of the study, Dr. Chase concluded that a positive identification is <i>5 times more likely</i> to be correct than incorrect.</p> <p>Therefore, he testified that given the positive identification by Mark Richards, it is <i>5 times more likely</i> that his identification of the defendant, Dan Thompson, is correct rather than incorrect.</p>	<p>of the participants saw another man who looked similar to Dan Thompson.</p> <p>The participants were then asked to review a lineup.</p> <p>Everyone was presented with a line-up that contained Dan Thompson, along with 5 other individuals.</p> <p>Recall, half of the participants in Dr. Chase’s study saw Dan Thompson rush out of the office and the other half did not.</p> <p>For the participants who saw Dan Thompson, a correct response would be to identify Dan Thompson as the man they saw during the study. This is referred to as a “Positive Identification.”</p> <p>For the participants who did not see Dan Thompson (they saw a similar looking man), a correct response would be to state that the man they saw during the study is NOT in a lineup. This is referred to as a “Non-Identification.”</p> <p>Based on the findings of the study, Dr. Chase concluded that a non-identification is <i>5 times more likely</i> to be correct than incorrect.</p> <p>Therefore, he testified that given a non-identification by Mark Richards, it is <i>5 times more likely</i> that his non-identification of the defendant, Dan Thompson, is correct rather than incorrect.</p>
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EVIDENCE 2:

A video camera mounted near the entrance to Capitol Building Inc.'s office showed a car rushing out of the parking lot at 7:17 that evening.

<b>STRONG</b>	<b>MODERATE</b>
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<p>A white Ford Taurus was seen leaving the parking lot. Dan Thompson drives a white Ford Taurus, and the license plate matched the car on the video camera.</p>	<p>A white Ford Taurus was seen leaving the parking lot. Dan Thompson drives a white Ford Taurus.</p>
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**EVIDENCE 3:**

Three days after the crime, Dan Thompson repaid a debt of \$4,870 to his credit card company. The debt had been mounting over the previous three months,

<b>STRONG</b>	<b>MODERATE</b>
<p>and the credit card company had threatened to take legal action.</p> <p>Mr. Thompson claimed that he assumed the debt to help his sister-in-law Lynn with her flower store, and that he repaid the debt from money she returned to him. He explained that he could not show bank documents to prove these transfers because in the flower business, financial transactions are typically done in cash.</p> <p><b>EVIDENCE 4:</b></p> <p>Lory Kolin, an executive at Capitol Building Inc., stated that she saw Dan Thompson just before 8:00 PM that night, as they were both picking up their children from a high school swim meet. At that time, Dan Johnson was still dressed in his work clothes.</p> <p>Ms. Kolin stated that around that time of day, it typically takes 20-30 minutes to get from the office to their neighborhood.</p>	<p>[blank]</p> <p>Mr. Thompson claimed that he assumed the debt to help his sister-in-law Lynn with her flower store, and that he repaid the debt from money she returned to him. He explained that he was able to show some bank documents to prove these transfers but not all, because in the flower business, financial transactions are typically done in cash.</p> <p><b>EVIDENCE 4</b></p> <p>Lory Kolin, an executive at Capitol Building Inc., stated that she saw Dan Thompson just before 8:00 PM that night, as they were both picking up their children from a high school swim meet. At that time, Dan Johnson was dressed in sweats.</p> <p>Ms. Kolin stated that around that time of day, it typically takes 50-60 minutes to get from the office to their neighborhood.</p>

**EVIDENCE 5:**

Dan Thompson's boss testified that a couple of months prior to the incident, she summoned him to discuss expenses that he had submitted for reimbursement. The boss chastised him for submitting non-refundable expenses. Mr. Thompson protested that many of his colleagues

submit the same expenses, and that he was being singled out. The boss was unconvinced. She refused to reimburse him for his expenses and delayed his eligibility for promotion by a year.

Mr. Thompson's colleagues reported that he was deeply offended by this incident.

<b>STRONG</b>	<b>MODERATE</b>
In the following weeks, he was seen working late less frequently.	In the following weeks, he was seen trying to make amends and repair his reputation.

EVIDENCE 6:

<b>STRONG</b>	<b>MODERATE</b>
At the age of eighteen, Dan Thompson was caught trying to break into an apartment, and was convicted for a misdemeanor. Since then, he has had no problems with the law.	Dan Thompson has had no other problems with the law.

You have seen all of the evidence in the case against Dan Thompson.

During closing arguments, the prosecutor noted that there is no question that grand theft, defined by the State of California as taking possession of property valued at over \$950 that is owned by someone else, occurred. The money from the safe totaling \$5,200 was gone. The prosecutor also noted that the evidence overwhelmingly points to the guilt of Dan Thompson.

During closing arguments, the defense attorney noted that there is no question that grand theft occurred, but he strongly denied that it was Dan Thompson who committed the crime.

## **II. VERDICT & LIKELIHOOD OF GUILT:**

You will now answer questions based on the case and about your opinions of the legal system in general. Please read each question carefully and answer thoughtfully.

Has the evidence proven Dan Thompson's guilt beyond a reasonable doubt?

Yes (Guilty)

No (Not Guilty)

Based on the evidence, what is the likelihood that Dan Thompson stole the money?  
[Sliding Scale 0-100]

**III. PROBATIVE VALUE COMPOSITE & LIKELIHOOD RATIO SCORES:**

<b>ID</b>	<b>Non-ID</b>
<p>How believable is Mark Richard's identification (that the defendant was the person Mark Richards saw in the office that night)?</p> <p><input type="radio"/> Very Unbelievable 1</p> <p><input type="radio"/> 2</p> <p><input type="radio"/> 3</p> <p><input type="radio"/> 4</p> <p><input type="radio"/> 5</p> <p><input type="radio"/> 6</p> <p><input type="radio"/> Very Believable 7</p>	<p>How believable is Mark Richard's non-identification (that the defendant was <i>not</i> the person Mark Richards saw in the office that night)?</p> <p><input type="radio"/> Very Unbelievable 1</p> <p><input type="radio"/> 2</p> <p><input type="radio"/> 3</p> <p><input type="radio"/> 4</p> <p><input type="radio"/> 5</p> <p><input type="radio"/> 6</p> <p><input type="radio"/> Very Believable 7</p>



<p>What is the likelihood that Mark Richards made an honest mistake when he said that the defendant was the person he saw in the office that night?</p> <p><input type="radio"/> Very Unlikely 1</p> <p><input type="radio"/> 2</p> <p><input type="radio"/> 3</p> <p><input type="radio"/> 4</p> <p><input type="radio"/> 5</p> <p><input type="radio"/> 6</p> <p><input type="radio"/> Very Likely 7</p>	<p>What is the likelihood that Mark Richards made an honest mistake when he said that the defendant was <i>not</i> the person he saw in the office that night?</p> <p><input type="radio"/> Very Unlikely 1</p> <p><input type="radio"/> 2</p> <p><input type="radio"/> 3</p> <p><input type="radio"/> 4</p> <p><input type="radio"/> 5</p> <p><input type="radio"/> 6</p> <p><input type="radio"/> Very Likely 7</p>
<p>What is the likelihood that Mark Richards was lying when he said that the defendant was the person he saw in the office that night?</p> <p><input type="radio"/> Very Unlikely 1</p> <p><input type="radio"/> 2</p> <p><input type="radio"/> 3</p> <p><input type="radio"/> 4</p> <p><input type="radio"/> 5</p> <p><input type="radio"/> 6</p> <p><input type="radio"/> Very Likely 7</p>	<p>What is the likelihood that Mark Richards was lying when he said that the defendant was <i>not</i> the person he saw in the office that night?</p> <p><input type="radio"/> Very Unlikely 1</p> <p><input type="radio"/> 2</p> <p><input type="radio"/> 3</p> <p><input type="radio"/> 4</p> <p><input type="radio"/> 5</p> <p><input type="radio"/> 6</p> <p><input type="radio"/> Very Likely 7</p>
<p>How good was Mark Richards's view of the event?</p>	

<input type="radio"/> Very Poor 1  <input type="radio"/> 2  <input type="radio"/> 3  <input type="radio"/> 4  <input type="radio"/> 5  <input type="radio"/> 6  <input type="radio"/> Very Good 7	
<p>If Dan Thompson were the man who Mark Richards saw in the office that night, what is the probability that Mark Richards would say “Dan Thompson is the guy I saw in the office that night?” [Scale 0-100%]</p> <p>If Dan Thompson were <b>NOT</b> the man who Mark Richards saw in the office that night, what is the probability that Mark Richards would say “Dan Thompson <b>IS</b> the guy I saw in the office that night?” [Scale 0-100%]</p>	<p>If Dan Thompson were <b>NOT</b> the man Mark Richards saw in the office that night, what is the probability that Mark Richards would say “Dan Thompson is <b>NOT</b> the guy I saw in the office that night?” [Scale 0-100%]</p> <p>If Dan Thompson <b>IS</b> the man Mark Richards saw in the office that night, what is the probability that Mark Richards would say “Dan Thompson is <b>NOT</b> the guy I saw in the office that night?” [Scale 0-100%]</p>

To ensure the survey is working properly, click 'disagree'.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree