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The impact of cognitive map quality and expert testimony on juror decisions and perceived credibility of eyewitnesses

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THE IMPACT OF COGNITIVE MAP QUALITY AND EXPERT TESTIMONY ON
JUROR DECISIONS AND PERCEIVED CREDIBILITY OF EYEWITNESSES

An Abstract of a Thesis

Submitted

in Partial Fulfillment

of the Requirements for the Degree

Master of Arts

Justin Parker Simmons

University of Northern Iowa

July 2016

ABSTRACT

An eyewitness to a crime is often asked to create a hand drawn psychological map of the crime scene in terms of the placement of buildings, people, and other objects. Psychological maps, also referred to as “sketch maps,” are a physical representation of one’s mental map of a particular location. Sketch maps are often submitted as evidence and presented to jury members during trial. Information from these maps can be used to provide information such as entrance and exit into the crime scene by the perpetrator, relative distance between eyewitness and perpetrator, and other information critical to jurors’ evaluations of eyewitness evidence and testimony. Previous research has shown that the quality of a sketch map can be manipulated with instructions (Simmons, Hedding, Hurd, & MacLin, 2014). Because sketch maps may influence juror decision making, the current study examined the relationship between the quality of a sketch map and perceived credibility of the eyewitness. Participants received eyewitness testimony including a sketch map, lineup identification, and the confidence level of the eyewitness identification. Additionally, the experimental groups received expert testimony either supporting a positive correlation between map quality and identification accuracy, refuting the correlation, or no expert testimony. After reviewing the materials, participants evaluated the credibility of the eyewitness and arrived at a verdict for the defendant based on the evidence provided. When given high quality sketch maps, participants found eyewitnesses to be more credible and arrived at more guilty verdicts compared to low quality sketch maps. Frequency of guilty verdicts also increased with expert testimony, regardless of the stance of the expert.

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and Perceived Credibility of Eyewitnesses

has been approved as meeting the thesis requirement for the
Degree of Master of Arts

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CHAPTER 1

INTRODUCTION

In 1991, two sisters woke up to an intruder who entered through their kitchen window. The women were sexually assaulted at knifepoint and the perpetrator stayed in the home for over an hour. Despite the lengthy encounter, neither of the women was able to get a good look at the face of their attacker. However, both women identified Joseph Abbitt, former neighbor and visitor in the family's home, as the intruder. The sisters separately identified Abbitt in a photo lineup and he immediately became the primary suspect. DNA tests were run to compare Abbitt's DNA to DNA left at the scene. The DNA test results were all either inconclusive or did not match Abbitt. In an effort to resolve the open case, investigators ignored the lack of DNA evidence and charged Abbitt based on the eyewitness testimony of the sisters. The victims testified their attacker was Abbitt. Abbitt had a solid alibi, which stated he was at work at the time of the attack. He even had his employer testify to this fact; however, due to the long time-lapse, no tangible evidence could be produced to prove that Abbitt was indeed at work. He was sentenced to two consecutive life sentences plus an additional ten years, solely based on the victims' identification. Fourteen years later, with the help of improved DNA testing, Abbitt was exonerated and released from prison (Innocence Project, 2015).

Stories such as Abbitt's have occurred time and time again: jurors believe an eyewitness' testimony over other types of evidence, often leading to a wrongful conviction (Koehler, 2001; Thompson & Newman, 2015). To date, there have been 238

exonerations of individuals who were wrongfully convicted due at least in part to faulty eyewitness identification. A staggering 75% of wrongful convictions include eyewitness identifications as a contributing factor (Innocence Project, 2015). While no system is perfect, adjustments can and should be made to improve the use of eyewitness testimony as evidence for convicting defendants.

Many factors are known to contribute to eyewitness identification inaccuracy (race, lighting, environmental factors, etc). Eyewitness accuracy is a rigorously studied topic (Douglass & Steblay, 2006; Fitzgerald, Price, Oriet, & Charman, 2013; MacLin, MacLin, & Malpass, 2001; Shapiro & Penrod, 1986; Steblay, 1997), all of which find evidence for eyewitness inaccuracy. While eyewitness identifications have garnered much attention, other forms of evidence are used by jurors to aid in arriving at verdicts; one variation of eyewitness testimony is a sketch map drawn by the eyewitness.

Sketch Maps

Eyewitnesses are often asked to draw a diagram of the crime scene in terms of the placement of buildings, people, and other objects in these sketch maps (Simmons et al., 2014). Sketch maps are a way to physically represent one's mental image of a particular location and event. Sketch maps are commonly admitted as evidence in court. Information from sketch maps are used to determine entrance and exit into the scene by the perpetrator, relative distance between eyewitness and perpetrator, and other information critical to jurors' evaluation of eyewitness evidence and testimony. Despite

its use in court, minimal research has been conducted relating to the use of sketch maps in the courtroom or the frequency in which it is used.

Cognitive Maps

The term “cognitive map” was first used in the paper “Cognitive maps in rats and men” (Tolman, 1948). Tolman coined this term while studying how rats navigated through a maze. In this particular study, there were three groups of rats that completed the maze for 17 days. Group 1 (reward group) was rewarded with food when they completed the complex maze. Group 2 (delayed reward group) was taken out of the maze when they got to the end for days 1-10; during days 11-17 they were rewarded with food at the end of the maze. Group 3 (no reward) was simply taken out of the maze when they got to the end. After day 11, Group 2 resembled Group 1 very quickly. Tolman interpreted this as Group 2 formed a cognitive map of the maze during the first 10 days, but once they were motivated by the food reward, they were able to complete the maze just as quickly as Group 1. The expedited process in which Group 2 completed the process is evidence that the rats formed cognitive maps of the maze. Tolman argued the rats were able to learn quickly because they had previously formed cognitive maps of the maze, became familiar with the maze, and used their cognitive maps to find the food.

Tolman theorized humans use the same kind of mental maps as rats when learning and navigating new areas. This is the first piece of research that describes cognitive maps, but further studies were necessary to inform how well humans could recall the cognitive

maps Tolman theorized that they created in their heads. Lynch (1960) made the next big contribution into this line of research.

Lynch's landmark work, "The Image of the City" (1960), attempted to physically manifest an individual's mental image (cognitive map) in the form of a sketch.

Essentially, he wanted to go from cognitive map (internal) to sketch map (external).

Lynch asked participants to sketch their respective cities (Jersey City, Los Angeles, or Boston) to observe similarities and differences in the participants' sketches. Although two people's cognitive maps of a city may be similar, their sketch maps could differ greatly due to artistic ability, the mental perspective from which they are drawing the map, the scale in which they draw their map, among many other individual differences. In addition to Lynch's work, Milgram and Jodelet (1976) also further examined similarities and differences in participants' city sketches.

Milgram and Jodelet (1976) conducted a study in which Parisians sketched maps of their city. Their study revealed the differences in sketch results from social status, familiarity with different areas of Paris, and the desire to have a more organized city. Many of the participants drew a portion of the city using straight lines, when in reality the borders and streets are far from parallel or straight. This study revealed that one's sketch map may represent their cognitive map, but their cognitive map is rarely a fully accurate representation of the city.

Much of the current research involving cognitive maps tends to deal with navigating through environments (Villacorta-Atienza, Calvo, & Makarov, 2015; Zhang,

Zherdeva, & Ekstrom, 2014). It does not focus on the perceived quality of sketch maps by a third party. Successful navigation, or way-finding as it is sometimes called, is defined as “knowing where you are, knowing your destination, knowing and following the best route to your destination, being able to recognize your destination upon arrival, and reversing the process to find your way back out” (Imani & Tabaeian, 2012, p. 54). This is akin to Tolman’s maze research, as the rats were essentially way-finding in the maze. Interestingly, this research has even been extended to way-finding in bees (Cheeseman et al., 2014).

Interesting as the way-finding research is, none of it applies the evaluation of sketch maps by a third party (a juror, in the current research) or how the quality of a sketch map will impact a juror’s perception of an eyewitness. There is no known research pertaining to sketch maps admitted as evidence in court and how this evidence impacts juror decisions.

Eyewitness Testimony

It is well established that memory, in general, is unreliable and malleable (Douglas & Steblay, 2006; Loftus & Pickrell, 1995; Wells, Lindsay, & Ferguson, 1979). Despite this fact, eyewitness testimony is often the primary source of evidence provided to the jury in cases without substantial physical evidence (Sauerland, Sagana, & Sporer, 2012). If you were to ask a layperson, they would most likely see nothing wrong with the extensive use of eyewitness testimony in jurors’ decisions. In a juror’s mind, if a witness saw an event, it is hard to imagine the eyewitness could inaccurately report what was

observed (Penrod & Cutler, 1989). This logic may intuitively make sense, however previous research suggests otherwise as jurors perform only slightly better than choosing at random when considering the accuracy of eyewitness testimony (Martire & Kemp, 2009).

Eyewitness testimony is unreliable but jurors often rely on it. Roughly 75% of DNA exonerations are due to eyewitness misidentifications (The Innocence Project, 2015). The reliance on eyewitness testimony partially stems from a lack of DNA evidence in most crimes (Wells & Olson, 2003), however that is not the only issue with juror decisions and eyewitness testimony. Even when there is DNA evidence available, the DNA evidence often does not receive as much weight as eyewitness evidence does due to laypeople's lack of statistical understanding. It is hard to imagine the miniscule possibility of DNA evidence being incorrect, so jurors sometimes rely on eyewitness testimony (Koehler, 2001; Thompson & Newman, 2015).

To make matters worse for innocent defendants, both jurors and judges believe eyewitness accounts at an alarmingly high rate. Jurors and even judges "are unaware of the sources of error in eyewitness testimony and consequently place undue faith in its veracity" (Woocher, 1977, p. 970) leading to perceived eyewitness accuracy and, in turn, to many false convictions (Wells & Olson, 2003). Eyewitness testimony is the primary source of evidence for many convictions, but should be considered skeptically because memory has been shown to be highly malleable (Loftus & Pickrell, 1995). One cannot necessarily fault jurors, as it is difficult for jury members to completely disregard

eyewitness testimony, especially when the witness is highly confident in their decision (Douglass & Jones, 2013; Palmer, Brewer, Weber, & Nagesh, 2013). The witness was at the crime scene so, intuitively, if they say “that is the guy,” the accusation consistently carries heavy influence on juror decisions (Semmler, Brewer, & Douglass, 2012) and that influence increases as witness confidence increases.

The reported confidence of the witness’ identification is arguably the most popular and widely used method of determining a witness’ credibility (Palmer et al., 2013). Although it is widely studied, and often used by jurors, confidence ratings can be deceiving when presented at trial. Jurors often believe a higher level of confidence by the eyewitness results in a higher chance the identification is accurate (Sauerland et al., 2012). This may make intuitive sense, but jurors should be made aware of possible confidence inflation from the eyewitness since research finds only a low correlation between confidence and accuracy (Wells et al., 1979). As with memory, confidence is also malleable. When participants were told they made a correct identification their confidence was higher compared to participants who did not receive the feedback (Douglass & Jones, 2013; Wells & Bradfield, 1998). Jurors should be informed of the confidence inflation phenomenon so they can take it into consideration when arriving at a conclusion regarding the witness’ credibility, especially considering the lack of correlation between confidence and accuracy.

Estimator and System Variables

Eyewitness accounts are often unreliable and there are two general sources for this unreliability: estimator variables and system variables (Wells, 1978). Estimator variables are variables the justice system cannot directly control and they include encoding conditions, stress and arousal, and characteristics of the eyewitness (including confidence) and characteristics of the suspect. One example of an estimator variable is the effect of race on eyewitness identification ability (Hourihan, Fraundorf, & Benjamin, 2013; MacLin & Malpass, 2001; Pezdek, O'Brien, & Wasson, 2012). Stress and negative emotions are additional estimator variables often arising while witnessing a crime. Situations high in stress and negative emotions actually allow witnesses to make more accurate identifications. For example, when presented with a two man holdup situation, the witness will remember the face of the man with the gun with higher accuracy than the face of the man who does not have a gun (MacLin et al., 2001; Block, Greenberg, & Goodman, 2009). For the purpose of this paper, estimator variables are not as relevant as system variables. The legal system cannot directly control what happens during the crime (estimator variable), but they can impact (directly or indirectly) how a witness presents their testimony (system variable). For this reason, system variables are more relevant to the current research.

System variables are controlled by the legal system and include lineup instructions, selection of lineup foils, and the presentation format of the lineup (Horry, Halford, Brewer, Milne, & Bull, 2013; Malpass & Lindsay, 1999; MacLin, Zimmerman,

& Malpass, 2005). System variables can negatively impact the accuracy of an eyewitness account. System variables are easier to manipulate to aid in the prevention of misidentifications, but it can also have an adverse impact on the accuracy. If feedback from law enforcement reveals law enforcement's "correct" choice was made, or another witness made the same selection, confidence is increased (Wells & Bradfield, 1998). This feedback from law enforcement is a system variable.

Sketch map estimator and system variables. One estimator variable, as it relates to sketch maps, is the eyewitness' artistic ability. In the same fashion that race cannot be manipulated and therefore can influence identification accuracy (MacLin, Van Sickler, MacLin, & Li, 2004), one's innate artistic ability also cannot be changed, which could impact a juror's perception of the eyewitness.

A system variable that is most relevant to this study is the sketch map instructions received by an eyewitness. In Simmons et al. (2014), it was found that the instructions given to eyewitnesses significantly affected the quality of sketch map produced. These findings support the literature pertaining to the impact of instructions given by law enforcement and lineup performance. For example, if law enforcement neglects to mention that the perpetrator may not be in the lineup, lineup identification become less accurate (Leippe, Eisenstadt, & Rauch, 2009; Quinlivan et al., 2012; Thompson & Johnson, 2008). Because instructions are a system variable, the justice system is able to (and should) create standards for instructions provided to eyewitnesses. If instructions are

more uniform, eyewitness accounts should become more accurate. Jurors should at minimum be informed of the impact of system variables, such as instructions.

Expert Testimony

In Simmons et al., (2014), it was found that a system variable (instructions) significantly impacted the quality of map that was drawn. An expert witness is meant to inform the jurors of the impact of variables such as these. Expert testimony is often provided by psychologists as a safeguard to protect against the susceptibility of jurors perceiving eyewitnesses as indisputably accurate. Experts also assist juror members in distinguishing between accurate and inaccurate eyewitness testimony by providing information and knowledge pertaining to human memory and how environmental conditions can impact memory (Martire & Kemp, 2009). For a wrongful conviction to occur based on faulty eyewitness evidence, the jury must believe the eyewitness is accurate. But, as previously mentioned, this belief can be unreliable. Despite the information provided by experts, jurors still give disproportionate credibility to eyewitness testimony, as evidenced by the amount of DNA exonerations.

It is generally agreed there are three potential juror responses to expert testimony. One possibility is that jurors' opinions are not impacted by the expert testimony. Another possible effect, called a "skepticism effect" (Penrod & Cutler, 1989), is that jurors become cynical of the eyewitness and therefore arrive at less guilty decisions. Lastly, it is possible that a "sensitization effect" (Penrod & Cutler, 1989), leads jurors to rely less on false indicators of accuracy, such as confidence or, in this case, high quality sketch maps,

and the jurors rely more on factors that truly correlate with eyewitness accuracy, such as lighting conditions (Penrod & Cutler, 1989).

Prior research has found expert witnesses create increased awareness and enhanced wariness of eyewitness identifications (Hosch, Beck, & McIntyre, 1980; Leippe, 1995). It is important for jurors (who are almost always laypeople) to understand the malleability of memory, how eyewitness confidence can be impacted in a variety of ways, the possibility of implanting false memories, and other sources for eyewitness testimony inaccuracy. Essentially, informed jurors decide differently than jurors who have not received information from an expert witness. Jurors place too much weight on eyewitness accounts even when the eyewitness' eyesight, for example, has been discredited (Loftus, 1975). An expert witness provides knowledge to the judge and jurors, which impacts juror decisions even more when it is explicitly linked to the case rather than leaving the link implicit (Kovera, Gresham, Borgida, Gray, & Regan, 1997). The impact of expert testimony has not been applied to the use of sketch maps in the courtroom, however.

Even though some evidence has presented itself in support of an enhanced sensitization effect, the most common effect of expert testimony is increased skepticism of the eyewitness. However, due to the lack of consensus in previous research, it is difficult to predict which effect will present itself (Cutler, Dexter, & Penrod, 1989).

Despite the sketch map, eyewitness testimony, and expert testimony studies of the past, the combination of the three subjects has yet to be studied. The current study builds

on Simmons et al., (2014) to examine the relationship between sketch maps, eyewitness testimony, and expert testimony.

Simmons et al., (2014)

Because of the lack of previous research pertaining to sketch maps in the courtroom, the first step was to establish how easily the quality of a sketch map could be manipulated. In doing this, participants first viewed a five minute video of a mock burglary (Charman & Wells, 2007). The video showed four culprits breaking into a storage garage. In the video, the participants were able to see all four of the culprits' faces. Participants were told to watch closely, but they were unaware that they would soon be asked to sketch a map. After watching the video, participants were asked to draw a map of the crime scene. To see the impact of instructions on their sketch maps, the participants received one of four sets of instructions. The instructions were as follows: (1) Draw a map of the crime scene (2) Draw a map of the crime scene with as much detail as possible (3) Draw a map of the crime scene with as much accuracy as possible 4) Draw a map of the crime scene with as much accuracy and detail as possible. After this, participants viewed four photo lineups and were asked to identify the four individuals from the video, along with the confidence levels in their selections, on 1-10 scale. Target-present and target-absent lineups were randomly assigned to participants.

The overall findings of Simmons et al., (2014) suggest that instructions do significantly influence the quality of map that is drawn (higher quality maps resulted from instructions asking for more detail, conditions 2 and 4). In order to measure map

quality, three independent judges rated each map individually. The judges were instructed to rate each map (1-10) on the level of detail, ease of understanding, and general aesthetics. The ratings were then aggregated to determine overall map quality. More importantly, the quality of map had no influence on identification accuracy. Accuracy and confidence were correlated with each other, but neither was correlated with the quality of map drawn by the eyewitness. In other words, participants who drew high quality maps were no better at identifying the culprit choice when compared to participants who did not draw high quality maps.

Current Study

The wording of biased instructions given to eyewitnesses is known to impact their identification confidence (Leippe et al., 2009). This is important and suggests that instructions should be standardized when presenting an eyewitness with a lineup of potential suspects to choose from. Prior to Simmons et al., (2014), there was no literature on the impact of instructions in terms of the quality of map drawn by an eyewitness. These studies serve as a foundation to build upon to learn more about sketch maps in the courtroom.

Jurors already place too much weight on eyewitness evidence (Loftus, 1975). Will jurors incorrectly place even more weight on the eyewitness evidence when the eyewitness draws a high quality sketch map due to instructions? Instructions are a system variable that can be standardized, so knowing this information has important real-world implications. For example, if high quality maps (which stem from differently worded

instructions) increase perceived eyewitness credibility, instructions should be standardized to prevent wrongful convictions based on the misattributed eyewitness credibility.

It is hypothesized that expert testimony will impact participants in the following way: When an expert says a high quality map sketch indicates identification accuracy, the juror could become more aware of the high quality sketch and give more credibility to the eyewitness testimony. If the expert were to say that there is no such correlation, the effect will be weaker for both types of maps. This effect will be less severe because explicit connections made by an expert are more impactful than connections that are left up to the jury to make (Kovera et al., 1997).

Based on previous research, two hypotheses were formed: (1) a high quality of map leads to higher perceptions of eyewitness credibility and more guilty verdicts and (2) expert testimony supporting a correlation between high map quality and lineup identification accuracy will increase jurors' perceived eyewitness credibility for sketchers of high quality maps.

CHAPTER 2

CURRENT RESEARCH

Method

Participants

Participants consisted of 151 undergraduate students from a Midwestern university who received partial course credit in exchange for participation in this study. The majority of the sample that indicated their race was Caucasian (85%). African-Americans were the second most common racial group (4%). Conditions were evenly distributed as to gender (three participants chose not to disclose their gender). The mean age of participants was 19.5 ($SD = 2.99$). All participants were recruited through a research participation system, were randomly assigned to experimental conditions, and received an informed consent form (Appendix A).

Independent Variables

Sketch map. A photocopy of an actual sketch map (Appendices B-C) was included. Participants either received a high quality sketch map or a low quality sketch map. The maps were collected through the first portion of Simmons et al., (2014). Rated by independent judges, the low quality map was randomly chosen from the bottom 10% and the high quality map was randomly from the top 10% according to the independent ratings of all maps in Simmons et al., (2014). A random number generator was used to select the maps from the top and bottom 10%.

The low quality map was noticeably disorganized and provided very little detail as to what happened. The high quality map provided notes, labels, and a clearer picture of the crime scene.

Expert testimony. For this independent variable, participants received a transcript of expert testimony to consider. There were three conditions: 1) expert stated that quality of map correlates with identification accuracy 2) expert stated quality of map does not correlate with identification accuracy 3) no expert testimony.

Dependent Variables

Verdict. After reviewing the packet of materials, participants were asked to indicate “guilty” or “not guilty” for both theft and burglary. For analysis, verdict was measured for theft and burglary along with a combined verdict. For the combined verdict, participants who chose guilty for theft, burglary, or both were combined into a “guilty” category. Participants who did not indicate guilty at all formed the “not guilty” group.

Eyewitness credibility. Participants were asked to indicate eyewitness credibility, based on the evidence they were provided. This was measured on a 7-point Likert scale.

Procedure

Participants entered a research area, were seated apart, and reminded to work independently. Once they were seated and read the informed consent form, they were informed they would have 30 minutes to complete the study. Participants served as jurors

and were told they would view trial information and then make decisions based on the information they observed.

Participants were verbally instructed to first look at only the packet of materials containing the case summary, the excerpt of court proceedings, the judge's instructions, the sketch map, the lineup identification, and the itemized report of stolen items. They were verbally instructed not to look at the other packet until the first packet had been thoroughly read. After thoroughly reading the first packet of materials, they were told they could look at the second packet given to them which included the questionnaire and the word find puzzle. They were also informed that they could reference at the first packet in order to complete the questionnaire. Participants then filled out the questionnaire and if any time remained, they were instructed to work on the word find puzzle until the 30 minutes were complete (there is no record of how many participants actually completed the word find). After the 30 minutes, participants were told the nature of the study, given a debriefing form, and thanked for their participation.

In the first packet of materials, participants first read the case summary (Appendix D). The case summary provided initial background information to the crime. The case summary in the control condition (Appendix E) did not include pre-trial hearing information. It was only relevant for conditions in which an expert was present.

Excerpts of court proceedings (Appendix F-J) included direct and cross-examinations of the eyewitness and an expert witness. In conditions with an expert, the transcripts differed slightly so there were five different versions of the excerpt of court

proceedings. The conditions differed depending on the testimony given by the expert and, therefore, the cross-examination questions aimed at the expert were different as well. Due to the lack of expert testimony in the control conditions, the same excerpt of court proceedings was used in both control conditions.

Judge's instructions (Appendix K) to the jury described the criteria for reaching a guilty verdict for burglary and theft. It also instructed the juror to weigh all evidence equally. The jurors were instructed that the burden is on the State to prove their case beyond a reasonable doubt. In conditions in which an expert was present, jurors were instructed to consider expert testimony just like any other testimony. The portion pertaining to expert testimony was omitted from the control groups.

All participants received a photo lineup (Appendix L) indicating which choice the eyewitness marked, along with the confidence level of the eyewitness in making their lineup selection.

The itemized report of stolen items (Appendix M) included a bulleted list describing the items stolen during the crime event and the estimated value of the items.

The questionnaires (Appendices N-O) asked participants to indicate their verdicts (not guilty/guilty) and demographic information. The questionnaire also asked participants to indicate on a 7-point Likert scale how credible they thought the eyewitness was, and what most influenced their decisions. Control and experimental condition questionnaires differed only in that the experimental condition questionnaires included

questions about the expert testimony, and control condition questionnaires omitted expert testimony questions.

A word find puzzle (Appendix P) was included for participants to complete if they finished the study before the allotted time was complete.

CHAPTER 3

RESULTS

Eyewitness Credibility

A 2 (map quality) x 3 (expert testimony condition) ANOVA (Table 1) was conducted to examine the effects of map quality and expert testimony condition on perceived credibility of the eyewitness. There was no significant effect of expert testimony, $F(2, 145) = .354, p = .702$, partial $\eta^2 = .005$. However, there was a significant effect of map quality, $F(1, 145) = 13.875, p < .001$, partial $\eta^2 = .087$ such that eyewitnesses were perceived as more credible in the high quality map condition ($M = 5.12, SD = 1.28$) than in the low quality map condition ($M = 4.32, SD = 1.38$), as predicted in hypothesis 1. This main effect was qualified by an interaction between map quality and expert testimony, $F(2, 145) = 4.356, p = .015$, partial $\eta^2 = .057$.

Table 1

*Expert Testimony*Map Quality ANOVA for Eyewitness Credibility*

| | <i>Df</i> | <i>F</i> | η^2 | <i>p</i> |
|----------------------|-----------|----------|----------|----------|
| (A) Expert testimony | 2 | 0.354 | 0.005 | 0.702 |
| (B) Map Quality | 1 | 13.875 | 0.087 | 0.001 |
| A x B (interaction) | 2 | 4.356 | 0.057 | 0.015 |

Using a one-way ANOVA, pairwise comparisons showed that in the “correlation” condition, eyewitness credibility was significantly higher in high quality maps compared to low quality maps (Table 2). This supports hypothesis 2, that the “correlation” expert condition significantly increased eyewitness credibility, but only high map quality conditions.

Table 2

Pairwise comparison, eyewitness credibility

| Expert Condition | (I) Map Quality | (J) Map Quality | Mean Difference (I-J) | Sig. |
|------------------|-----------------|-----------------|-----------------------|-------|
| No Correlation | High Quality | Low Quality | 0.268 | 0.467 |
| Correlation | High Quality | Low Quality | 1.675 | 0.000 |
| No Expert | High Quality | Low Quality | 0.441 | 0.241 |

Verdict

A chi-square test for association was conducted between map quality and burglary verdict. All expected cell frequencies were greater than five. There was a statistically significant association between map quality and burglary verdict choice, $\chi^2(1) = 8.922, p = .003$, such that 33.3% of participants who received the low quality map chose guilty. In contrast, 57.5% of participants who received the high quality map chose guilty. As predicted in hypothesis 1, high quality map conditions resulted in more guilty verdicts. See Table 3 for a complete report of percentages and Figure 1 for a graphic representation of burglary verdict choice by map quality.

Table 3
*Crosstabulation: burglary verdict*map quality*

| Map Quality | | Guilty | Not Guilty | Total |
|--------------|----------------------|--------|------------|-------|
| Low Quality | Count | 26 | 52 | 78 |
| | Expected Count | 35.1 | 42.9 | 78 |
| | % within Map Quality | 33.3% | 66.7% | 100% |
| | % within Burglary | 38.2% | 62.7% | 51.7% |
| | % of Total | 17.2% | 34.4% | 51.7% |
| High Quality | Count | 42 | 31 | 73 |
| | Expected Count | 32.9 | 40.1 | 733 |
| | % within Map Quality | 57.5% | 42.5% | 100% |
| | % within Burglary | 61.8% | 37.3% | 48.3% |
| | % of Total | 27.8% | 20.5% | 48.3% |
| Total | Count | 68 | 83 | 151 |
| | Expected Count | 68 | 83 | 151 |
| | % within Map Quality | 45% | 55% | 100% |
| | % within Burglary | 100% | 100% | 100% |
| | % of Total | 45% | 55% | 100% |

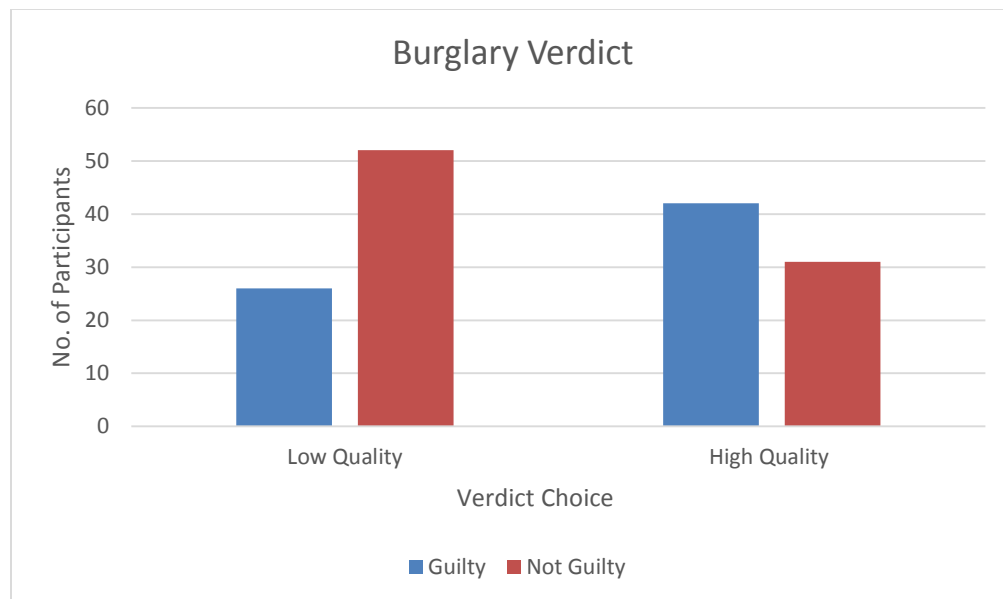


Figure 1. Burglary verdict*map quality

A chi-square test was also conducted between map quality and theft verdict.

Again, all expected cell frequencies were greater than five. There was not a statistically significant association between map quality and theft verdict choice, $\chi^2(1) = 3.363$, $p = .067$, although it was close to being significant at the $p < .05$ level. Contrary to hypothesis 1, high quality map conditions did not result in more guilty verdicts. A complete report of counts and percentages can be found in Table 4.

Table 4

*Crosstabulation: theft verdict*map quality*

| Map Quality | | Guilty | Not Guilty | Total |
|--------------|----------------------|--------|------------|-------|
| Low Quality | Count | 28 | 50 | 78 |
| | Expected Count | 33.6 | 44.4 | 78 |
| | % within Map Quality | 35.9% | 64.1% | 100% |
| | % within Theft | 43.1% | 58.1% | 51.7% |
| | % of Total | 18.5% | 33.1% | 51.7% |
| High Quality | Count | 37 | 36 | 73 |
| | Expected Count | 31.4 | 41.6 | 73 |
| | % within Map Quality | 50.7% | 49.3% | 100% |
| | % within Theft | 56.9% | 41.9% | 48.3% |
| | % of Total | 24.5% | 23.8% | 48.3% |
| Total | Count | 65 | 86 | 151 |
| | Expected Count | 65 | 86 | 151 |
| | % within Map Quality | 43% | 57% | 100% |
| | % within Theft | 100% | 100% | 100% |
| | % of Total | 43% | 57% | 100% |

Due to the similarity of the theft and burglary charges, a chi-square test for association was conducted between map quality and any verdict of guilt. For this analysis, participants who chose guilty for theft, burglary, or both were combined. Participants who did not indicate guilty at all formed the other group, not guilty. This new variable will be called “combined verdict.” There was a statistically significant association between map quality and combined verdict, $\chi^2(1) = 8.171, p = .004$. As predicted in hypothesis 1, high quality map conditions resulted in more guilty verdicts. When considering only participants who received a low quality map, 35.9% indicated guilty at least once. In contrast, when considering only participants who received a high quality map, 56.9% indicated guilty at least once. A complete report of counts and percentages can be found in Table 5.

Table 5
*Combined verdict*map quality crosstabulation*

| Map Quality | | Guilty | Not Guilty | Total |
|--------------|----------------------|--------|------------|-------|
| Low Quality | Count | 28 | 50 | 78 |
| | Expected Count | 33.6 | 44.4 | 78 |
| | % within Map Quality | 35.9% | 64.1% | 100% |
| | % within Verdict | 43.1% | 58.1% | 51.7% |
| | % of Total | 18.5% | 33.1% | 51.7% |
| High Quality | Count | 37 | 36 | 73 |
| | Expected Count | 31.4 | 41.6 | 73 |
| | % within Map Quality | 50.7% | 49.3% | 100% |
| | % within Verdict | 56.9% | 41.9% | 48.3% |
| | % of Total | 24.5% | 23.8% | 48.3% |
| Total | Count | 65 | 86 | 151 |
| | Expected Count | 65 | 86 | 151 |
| | % within Map Quality | 43% | 57% | 100% |
| | % within Verdict | 100% | 100% | 100% |
| | % of Total | 43% | 57% | 100% |

Additional Analyses

To further analyze the impact of expert testimony condition on verdict outcomes, three chi-square tests were conducted between map quality and combined verdict. Each of the three tests examined only one of the expert testimony conditions. All expected cell frequencies were greater than five.

When considering only participants who were in the “no correlation” expert testimony condition, there was not a statistically significant association between map quality and combined verdict choice, $\chi^2(1) = 1.639, p = .200$. Participants who received

high quality maps did not reliably indicate guilty more often than participants who received low quality maps. Full results can be found in Table 6.

Table 6

*Map quality*verdict crosstabulation (no correlation)*

| Map Quality | | Guilty | Not Guilty | Total |
|--------------|----------------------|--------|------------|-------|
| Low Quality | Count | 12 | 14 | 26 |
| | Expected Count | 14.3 | 11.7 | 26 |
| | % within Map Quality | 46.2% | 53.8% | 100% |
| | % within Verdict | 42.9% | 60.9% | 51.0% |
| | % of Total | 23.5% | 27.5% | 51.0% |
| High Quality | Count | 16 | 9 | 25 |
| | Expected Count | 13.7 | 11.3 | 25 |
| | % within Map Quality | 64.0% | 36.0% | 100% |
| | % within Verdict | 57.1% | 39.1% | 49.0% |
| | % of Total | 31.4% | 17.6% | 49.0% |
| Total | Count | 28 | 23 | 51 |
| | Expected Count | 28 | 23 | 51 |
| | % within Map Quality | 55% | 45% | 100% |
| | % within Verdict | 100% | 100% | 100% |
| | % of Total | 55% | 45% | 100% |

Participants who did not receive expert testimony did not exhibit a statistically significant association between map quality and combined verdict choice, $\chi^2(1) = 2.294, p = .130$. Full results can be found in Table 7.

Table 7
*Map quality*verdict crosstabulation (no expert)*

| Map Quality | | Guilty | Not Guilty | Total |
|--------------|----------------------|--------|------------|-------|
| Low Quality | Count | 7 | 19 | 26 |
| | Expected Count | 9.6 | 16.4 | 26 |
| | % within Map Quality | 26.9% | 73.1% | 100% |
| | % within Verdict | 38.9% | 61.3% | 53.1% |
| | % of Total | 14.3% | 38.8% | 53.1% |
| High Quality | Count | 11 | 12 | 23 |
| | Expected Count | 8.4 | 14.6 | 23 |
| | % within Map Quality | 47.8% | 52.2% | 100% |
| | % within Verdict | 61.1% | 38.7% | 46.9% |
| | % of Total | 22.4% | 24.5% | 46.9% |
| Total | Count | 18 | 31 | 49 |
| | Expected Count | 18 | 31 | 49 |
| | % within Map Quality | 37% | 63% | 100% |
| | % within Verdict | 100% | 100% | 100% |
| | % of Total | 37% | 63% | 100% |

When considering only participants who were in the “correlation” expert testimony condition, there was a statistically significant association between map quality and combined verdict choice, $\chi^2(1) = 4.763, p = .029$. Participants who received high quality maps indicated guilty significantly more often than their low quality map counterparts. This was not explicitly predicted in the hypotheses, but it is notable that the “correlation” condition is the only expert testimony condition which exhibited a significant association between map quality and combined verdict choice. Full results can be found in Table 8 and Figure 2 represents a graphic representation of the data.

Table 8
*Map quality*verdict crosstabulation (correlation)*

| Map Quality | | Guilty | Not Guilty | Total |
|--------------|----------------------|--------|------------|-------|
| Low Quality | Count | 12 | 14 | 26 |
| | Expected Count | 15.8 | 10.2 | 26 |
| | % within Map Quality | 46.2% | 53.8% | 100% |
| | % within Verdict | 38.7% | 70.0% | 51.0% |
| | % of Total | 23.5% | 27.5% | 51.0% |
| High Quality | Count | 19 | 6 | 25 |
| | Expected Count | 15.2 | 9.8 | 25 |
| | % within Map Quality | 76.0% | 24.0% | 100% |
| | % within Verdict | 61.3% | 30.0% | 49.0% |
| | % of Total | 37.3% | 11.8% | 49.0% |
| Total | Count | 31 | 20 | 51 |
| | Expected Count | 31 | 20 | 51 |
| | % within Map Quality | 61% | 39% | 100% |
| | % within Verdict | 100% | 100% | 100% |
| | % of Total | 61% | 39% | 100% |

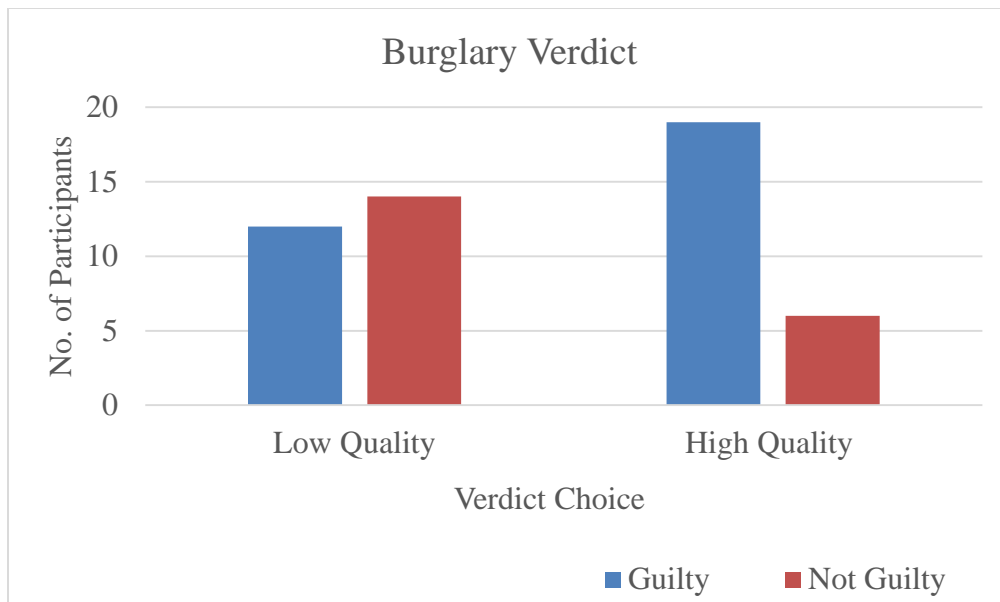


Figure 2. Combined Verdict*Correlation Condition

Results were split by verdict and an independent samples T-test was conducted to further test hypothesis 2 (eyewitness credibility would be higher in the “correlation,” high map quality, guilty condition). When the verdict was guilty, eyewitness credibility was lower when map quality was lower ($M = 4.94$, $SD = 1.459$) than when map quality was higher ($M = 5.76$, $SD = .794$); $t(75) = -3.203$, $p = .002$. However, for not guilty verdicts, eyewitness credibility did not differ between low ($M = 3.91$, $SD = 1.176$) and high quality map conditions ($M = 4.04$, $SD = 1.224$); $t(72) = -.424$, $p = .673$. These results do not support the hypothesis that predicted there would be a significantly higher eyewitness credibility rating across conditions.

CHAPTER 4

DISCUSSION

There is very little previous data concerning the use of eyewitness sketch maps and how these maps impact juror decisions. As hypothesized, jurors perceived the eyewitness as more credible in the high quality map conditions when compared to the low quality map conditions. The increase in perceived eyewitness credibility contributes to more guilty verdicts in the high quality map groups when compared to the low quality map conditions, which was also hypothesized. Also hypothesized and supported, the expert testimony condition led to higher perceived credibility of the high-quality-map-eyewitness and lower perceived credibility in the low-quality-map-eyewitness conditions. There were significantly more guilty verdicts in the correlation condition than the control condition as hypothesized. However, there were also significantly more guilty verdicts in the no correlation expert condition when compared to the control condition and this was not hypothesized. Overall, if the participants received any type of expert testimony, the juror was more likely to arrive at a guilty verdict. Because eyewitness testimony is known to assist the prosecution in convicting a defendant, a possible explanation for the current phenomenon is that the eyewitness testimony was highlighted for juror-participants in expert present conditions and made it more impactful towards their decision.

Although many analyses were conducted to evaluate the data collected, the foundation for the hypotheses and data collection stem from Simmons et al., (2014). In this study, it was concluded that map quality does not correlate with lineup identification performance. This is important to remember throughout the analysis and consideration for the current research.

Two hypotheses were formed in the current research: (1) a high quality of map leads to higher perceptions of eyewitness credibility and more guilty verdicts and (2) expert testimony supporting a correlation between high map quality and lineup identification accuracy will increase jurors' perceived eyewitness credibility for sketchers of high quality maps. The quality of sketch map does have an effect on a juror's verdict and perception of eyewitness. There was a relationship between quality of sketch map and perceived credibility of the eyewitness. As hypothesized, high quality maps resulted in higher perceptions of eyewitness credibility. This is slightly troubling because prior research supports a lack of correlation between map quality and credibility (measured by lineup identification task performance; Simmons et al., 2014). In other words, participants in the present study considered participants more credible when the participants sketched high quality maps. However, the results from Simmons et al., (2014) indicate that there is no correlation between map quality and actual eyewitness credibility.

The sketch maps had an impact on a juror's decision, regardless of the expert testimony condition. In high map quality conditions only, a guilty verdict was chosen by

24.2% more participants when compared to low map quality conditions only. This indicates jurors used the map quality as a scale of eyewitness credibility, and when the eyewitness was less credible, there were less guilty verdicts. This supports hypothesis 1.

The presence of expert testimony impacted the verdict that was reached. Not guilty verdicts were much more common than guilty verdicts when there was no expert testimony. No matter what the expert stated (“correlation” or “no correlation”), there were more guilty verdicts in expert-present conditions (see Tables 6-8). One possible explanation for this is the lack of an opposing expert testimony in the current research. An opposing expert witness can decrease the legitimacy of another expert (Devenport & Cutler, 2004). Since this factor was absent from current research, the expert’s perceived credibility was not challenged, with the exception of a brief cross-examination. Essentially, no matter what the expert stated, it highlighted the fact that there was a sketch map drawn by someone who witnessed the crime. Emphasizing the fact that someone witnessed the crime and identified a suspect may have lead participants to arrive at a guilty verdict more often. It would be interesting to see the difference in results if an opposing expert was introduced. I propose the results would stay similar to the current research, but the influence of expert testimony would decrease as the opposing sides may cancel each other out.

There were significantly more guilty verdicts when an expert provided testimony. Higher conviction rates with the presence of an expert could be caused by the expert simply pointing out the eyewitness testimony. Previous research supports that eyewitness

testimony plays a significant role in juror decisions, so if the expert simply made note of the presence of eyewitness testimony, it could very well increase the perceived credibility of the eyewitness. Participants who chose a guilty verdict viewed the eyewitness as much more credible overall, even when map quality was low and expert testimony stated that there is a correlation between map quality and eyewitness accuracy. In other words, participants considered the eyewitness in the aforementioned condition as credible, despite the expert testifying to the contrary. Individuals in this group chose “guilty” despite seeing a low quality map. Essentially, they found the eyewitness credible enough to arrive at a conviction even though the eyewitness provided the juror with a low quality of map. This fact supports the heavy influence of eyewitness testimony, at least in this condition, but partially refutes hypothesis 2.

The quality of map also significantly impacted the eyewitness credibility. When the participant received a low quality map, the perceived eyewitness credibility was significantly lower. Quality of map affects the jurors’ perceptions of an eyewitness, but if the expert says there is no correlation between map quality and credibility of the eyewitness (which is supported by previous research), then the eyewitness credibility score was significantly higher than if the expert reported that there is a correlation between map quality and credibility of the eyewitness. This implies that both expert testimony regarding map quality and the map quality itself impacts how a juror will view the eyewitness in terms of credibility.

When considering the effect of expert testimony in this study, the results generally followed the original hypothesis. When expert testimony was presented, there were more guilty verdicts than expected according to a chi-square. The effect was the strongest in the “correlation” expert condition. An opposite effect was revealed when there was no expert present, inducing many more not guilty verdicts than predicted by the chi-square. Considering this, there is an impact on ultimate juror decisions based on the presence of expert testimony, along with the type of information the expert presented. The mere presence of an expert made the largest difference in the ultimate verdict, however.

Participants also considered expert testimony that suggested a “correlation” more influential than the “no correlation” form of expert testimony. More specifically, participants who indicated guilt, viewed a high quality map, and received the “correlation” expert condition, found the expert testimony to be significantly more influential than their counterparts who viewed a low quality map. The expert is essentially supporting the eyewitness and reinforcing the trust the participant already possessed for the eyewitness. Because they were so influential for this group of participants, they trusted the eyewitness more and therefore arrived at more guilty verdicts.

The results indicate that both the quality of map and the type of expert testimony received, independently impacted the juror’s verdict. Participants chose a guilty verdict significantly more often when in the “correlation” condition and viewing a high quality

map. This implies that jurors took the expert witness' testimony stating a correlation between map quality and eyewitness accuracy very seriously, trusted the eyewitness, and found the defendant guilty.

General Discussion

In the previous study (Simmons et al., 2014), it was found the instructions eyewitnesses receive prior to drawing a sketch map can dictate the quality of the map. If the instructions ask for more detail or more accuracy, the overall perceived quality of the map will increase. This is important and has definite real-world implications, as it could lead to even more wrongful convictions. The instructions given to eyewitnesses should be uniform across all cases, reducing system variables that could (and do) influence jurors' perceptions of the eyewitness, as was indicated in the current study. When participants received a low quality map, they viewed the eyewitness as significantly less credible. This presents a problem given the research that supports quality of map having no impact on the credibility or accuracy of an eyewitness, as revealed in Simmons et al., (2014). In reality, this could lead to false convictions or acquittals if eyewitness credibility causes jurors to decide differently.

Expert testimony was seen as more influential when there was a correlation reported between map quality and eyewitness ability. According to prior research, this is an incorrect correlation, but it impacted juror decisions more than the correct statement, that there is no correlation between the two forms of eyewitness testimony. In Martire and Kemp (2009), it was found that jurors who received expert testimony mentioning a

construct (eyewitness confidence in their study) led to increased influence of the construct. It is highly questioned as to whether expert testimony makes jurors sensitive or more skeptical of the eyewitness' abilities, but research does support that an expert pointing out facets of eyewitness testimony (a map, for instance), will make that facet more influential. To parallel the current research to the previous confidence research, an expert merely mentioning the map significantly increased the maps influence on the participant-juror's decisions.

Expert testimony is undoubtedly necessary in order to inform jurors of the unreliability of certain types of eyewitness evidence, but the data in the current study and Simmons et al., (2014) reveal it must be used with caution. In the current research, the expert presented no data or evidence to support this claim. Despite the lack of evidence, it was still significantly more influential than the testimony that was actually based in fact, according to Simmons et al., (2014).

Both initial broad hypotheses, (1) higher quality of map will increase eyewitness credibility, juror decisions or perception of the eyewitness testimony and (2) if expert testimony that *specifically pertains to sketch map knowledge* influences juror decisions are supported by the data. The results indicate that both quality of map and expert testimony independently influence the perception of an eyewitness. Throughout conditions, the quality of map seemed to effect the juror decisions and perceptions of the eyewitness more than the expert testimony. This is vital because it is already well-established that expert testimony affects juror decisions; if map quality affects the juror

decisions *even more* than expert testimony, it should be researched more extensively.

Although participants reported the expert testimony as more influential, the combination of map quality and expert testimony conditions received also interacted to create significant differences in both verdict and the perception of the eyewitness' credibility.

When there was an expert witness present, specifically pointing out the quality of map in both conditions, the influence of the map became significantly higher in conditions that a high quality of map was received and a guilty verdict was chosen. High quality maps were considered more influential, but it is not determined if it was the quality of map that led to a higher difference in means, or if it was simply an artifact of an expert specifically pointing out the map and bringing it to attention to the juror. The latter is hypothesized because the mean differences in map influence are the lowest for conditions that did not include testimony from an expert.

Future Research

In future studies regarding sketch maps in court, it is advisable to assess the impact that eyewitness credibility, based on sketch maps, has on juror decisions. It is important to find out if a jury will decide differently based simply on the eyewitness' perceived credibility. This would be most effective without the presence of expert testimony to be more certain the effects are coming from the quality of map. The current study did have a condition in which there was no expert testimony, but there is not a large enough sample from which to derive valid conclusions. Asking participants about their perception of the map could have served as a useful manipulation check as well. If jurors

do base their verdicts on eyewitness credibility, it increases the importance and urgency in which sketch map instructions are made uniform across all cases. It is impossible to eliminate all estimator variables, but any system variable that could potentially impact a verdict should be controlled for as much as possible.

The significantly more guilty verdicts when an expert was present could result from more information being provided in the excerpts for expert present conditions. One remedy to this could be including additional expert testimony (unrelated to sketch maps). One would have to use caution in this, however, because this additional expert testimony could skew jurors in unforeseen ways. One could also replicate the current procedure but include a condition that does not provide a map and see how those results would differ from the current results. These options could tease apart the findings even more and provide additional information as to why some of the results occurred, such as the inconsistent effect of the expert testimony.

This study was simply a packet/questionnaire study. The validity could be improved if there was a video of the same information that was found in the packet. Audio evidence would also make the research more valid and applicable to the real world. Providing an environment in which jurors could deliberate would also increase realism. This research reveals the implications of using expert testimony and sketch maps as evidence, but it could be expanded upon if the courtroom situation reflected the real-world more closely. Video or audio evidence may have a different impact when compared to simply reading a transcript of court proceedings. Even with video or audio

evidence, it is still difficult to use fictional eyewitnesses and mock crimes, because it is impossible to tell if the change in juror decision due to expert testimony was defensible. There is a lack of objective accuracy in the juror's decision and how it is affected by expert testimony when real eyewitnesses are not used. Creating an imitation eyewitness does not allow for proper evaluation of the expert testimony, especially when considering sensitivity, or rejecting expert witness testimony even though the odds say it should be accepted; i.e. good identifications in a bad environment. Success rate of skepticism and sensitivity is impossible to decipher due to the fictional eyewitness, and this hinders the ability to properly judge expert testimony.

Another possible future study could involve two expert witnesses who oppose each other. This would make it more realistic as often times both sides in a case will call their own expert witness. This would allow for direct and cross-examinations from both sides. Another way the expert witness could be manipulated is to give a direct, explicit opponent to the testimony stating there is a correlation between map quality and identification ability. In the current study, participants only saw a denial of the correlation. In a possible future study, the denial could evolve into a confirmation of an opposite correlation. For example, the competing expert would explicitly state that there is a *negative* correlation between map quality and identification accuracy. It would be interesting to see if eyewitness credibility would decrease in this condition when the transcript presents stronger evidence instead of simply a lack of a correlation.

Although the current results were partially hypothesized, having a condition in which the participant doesn't view a map at all could reveal the cause of the unpredicted results. Combining this condition with an expert absent condition would provide a pure control condition. Additionally, participants could be exposed to an example of high and low quality maps by the expert witness in order to provide context of what makes up a high quality map or a low quality map.

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APPENDIX A: INFORMED CONSENT

UNIVERSITY OF NORTHERN IOWA HUMAN PARTICIPANTS REVIEW INFORMED CONSENT

Project Title: Jury Decisions and Eyewitness Testimony

Name of Investigator(s): Justin Simmons

Invitation to Participate: You are invited to participate in a research project conducted through the University of Northern Iowa. The University requires that you give your signed agreement to participate in this project. The following information is provided to help you make an informed decision about whether or not to participate.

Nature and Purpose: This research is designed to examine eyewitness accounts and decision making.

Explanation of Procedures: As a participant in this study, you will view a packet of information pertaining to a simulated crime. You will be asked to evaluate the packet. You will also be asked to complete a short questionnaire where you will provide information about your demographics (sex, age, race, college standing). This study is expected to take approximately 45 minutes. At the conclusion of the study, all data will be used to compile statistical results and subsequently stored in a safe area out of reach of others. You may discontinue involvement in the study at any time.

Discomfort and Risks: Participants in this study are expected to experience no more than normal risks experienced in daily social interaction.

Benefits and Compensation: All participants will also receive the education experience of participating in a scientific study and 1 credit on the SONA system for their participation.

Confidentiality: All data collected are strictly anonymous. Summarized data may be published in a scholarly and academic setting. Any and all data collected may be used in future research. Your confidentiality will be maintained to the degree permitted by the technology used.

Right to Refuse or Withdraw: Your participation is voluntary. You are free to withdraw from participation at any time or to choose not to participate at all, and by doing so, you will not be penalized or lose benefits to which you are otherwise entitled.

Questions: If you have questions about the study you may contact or desire information in the future regarding your participation or the study generally, you can contact Justin Simmons at 319-360-5024 or the project investigator's faculty advisor Dr. Otto MacLin

at the Department of Psychology, University of Northern Iowa 319-273-2373. You can also contact the office of the IRB Administrator, University of Northern Iowa, at 319-273-6148, for answers to questions about rights of research participants and the participant review process.

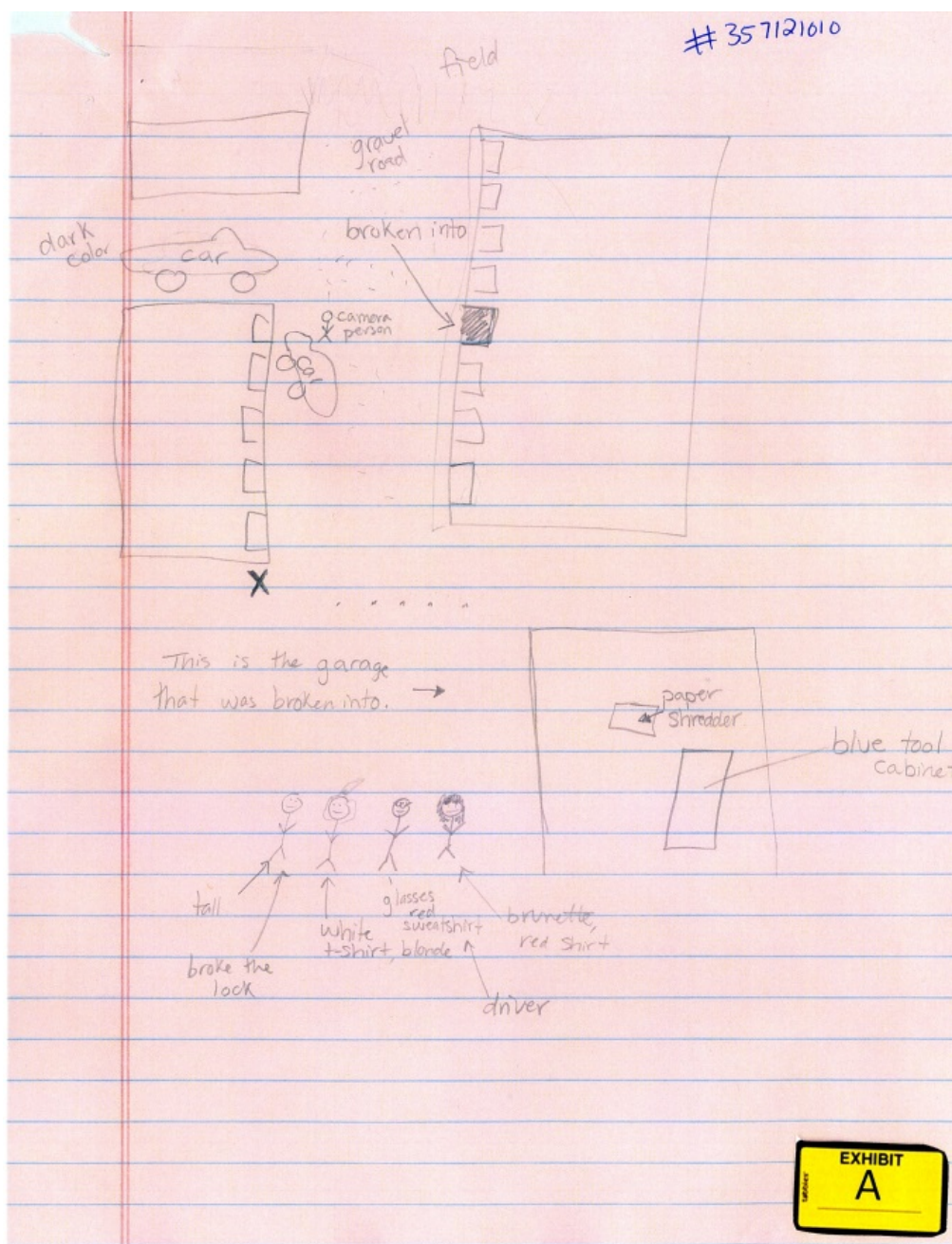
I have read the above statement. I have been able to ask questions and express my concerns about this study, which have been adequately answered by the investigators of this study. I understand the potential risks and benefits of participating in this study. I am over the age of 18 and give my free and informed consent to participate in this study.

Signature

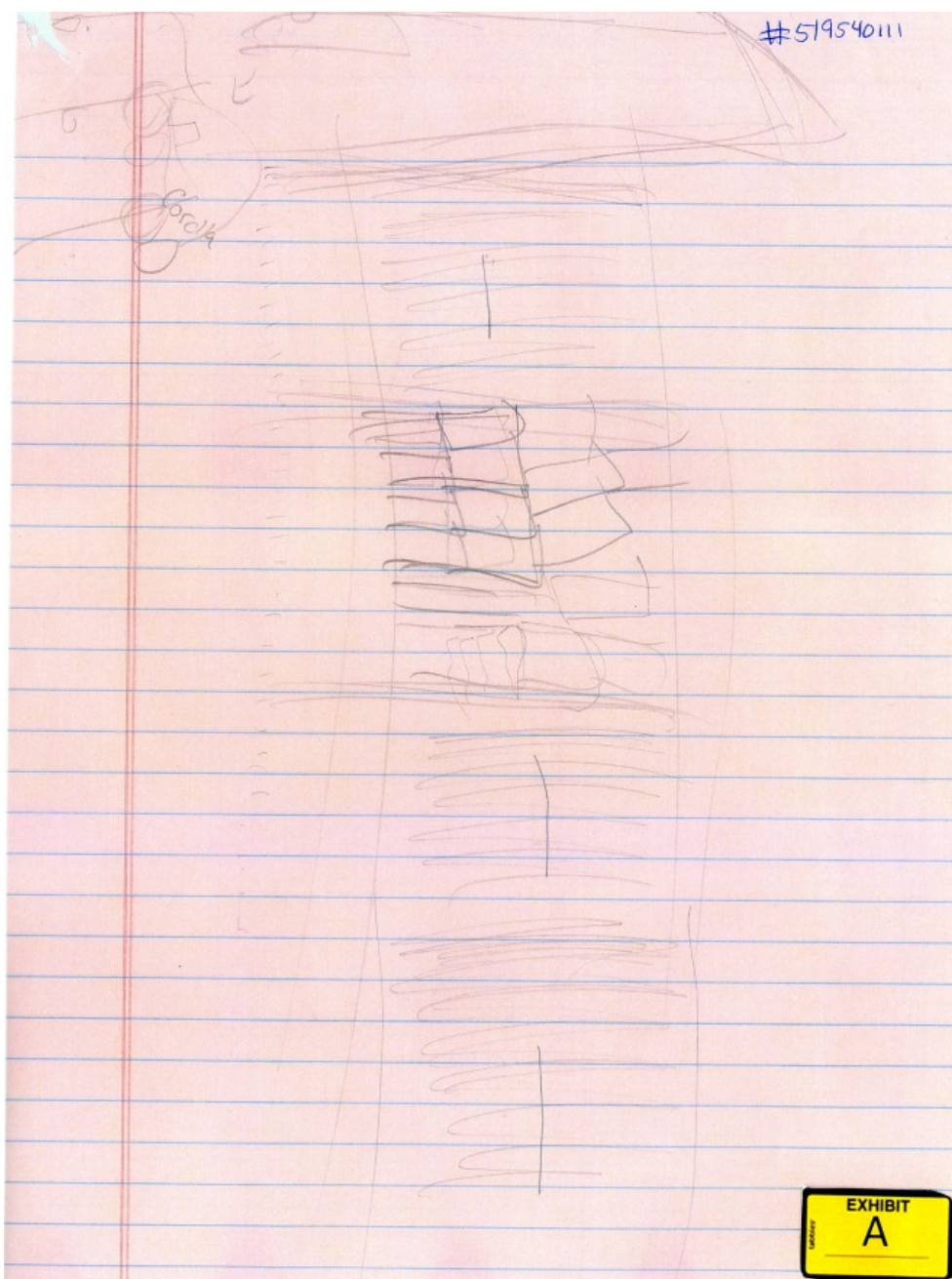
Date

Print Name

APPENDIX B: HIGH QUALITY MAP



APPENDIX C: LOW QUALITY MAP



APPENDIX D: CASE SUMMARY (EXPERT)

The People of the State of Iowa, Plaintiff-Appellee, v. Mark Staley, Defendant Appellant

No. 83DC0970

Black Hawk County District Court, Division One August 2, 2014

Bailiff's Notes: None

Transcriber's Notes: None

CASE SUMMARY

Crime Event

On Sunday July 29th 2012, Mr. James Mitchell was a passerby of Bagwell Storage Units, and witnessed the burglary of one of the storage units. The burglary occurred around 2pm and Mr. Mitchell called 911 reporting the crime. Mr. Mitchell was around 40 feet away from the culprits. He said that one of the perpetrators cut the lock on the garage and they each ran in and carried out a box. When interviewed by police he reported seeing 4 people, 2 males and 2 females, provided descriptions, and indicated he could identify them if he saw a picture.

Investigation

Officers requested Mr. Mitchell sketch a map of the crime scene in order to determine relative distances and how well Mr. Mitchell was able to recall the scene of the crime. This was used as a portion of his eyewitness testimony.

Although there are four perpetrators in this crime, only Mr. Staley is being tried in this particular case. The other suspects will be tried separately at a later date.

Charges

The State has charged Mark Staley with third degree burglary and second degree theft. These charges stem from events that occurred on July 29th 2012. Further details of these charges will be included in the instructions you will receive from the judge.

Pre-Trial Hearing

A request was made that Dr. Allen Whitfield, a professor of psychology and law, be allowed to testify as an expert in this case regarding cognitive maps and lineup identification. After review of Dr. Whitfield's vita, the motion was granted.

APPENDIX E: CASE SUMMARY (NO EXPERT)

The People of the State of Iowa, Plaintiff-Appellee, v. Mark Staley, Defendant Appellant

No. 83DC0970

Black Hawk County District Court, Division One August 2, 2014

Bailiff's Notes: None

Transcriber's Notes: None

CASE SUMMARY

Crime Event

On Sunday July 29th 2012, Mr. James Mitchell was a passerby of Bagwell Storage Units, and witnessed the burglary of one of the storage units. The burglary occurred around 2pm and Mr. Mitchell called 911 reporting the crime. Mr. Mitchell was around 40 feet away from the culprits. He said that one of the perpetrators cut the lock on the garage and they each ran in and carried out a box. When interviewed by police he reported seeing 4 people, 2 males and 2 females, provided descriptions, and indicated he could identify them if he saw a picture.

Investigation

Officers requested Mr. Mitchell sketch a map of the crime scene in order to determine relative distances and how well Mr. Mitchell was able to recall the scene of the crime. This was used as a portion of his eyewitness testimony.

Although there are four perpetrators in this crime, only Mr. Staley is being tried in this particular case. The other suspects will be tried separately at a later date.

Charges

The State has charged Mark Staley with third degree burglary and second degree theft. These charges stem from events that occurred on July 29th 2012. Further details of these charges will be included in the instructions you will receive from the judge.

APPENDIX F: HIGH QUALITY MAP*EXPERT SUPPORTS RELATIONSHIP

Excerpt of Court Proceedings

Prosecuting Attorney: "Could you please state your name for the record?"

James Mitchell: "James Mitchell, M-I-T-C-H-E-L-L"

Prosecuting Attorney: "Could you tell us what you were doing on July 29th, 2012 around 2pm?"

James Mitchell: "I was walking on the sidewalk next to Bagwell Storage Units. I happened to look over and saw four people, two guys and two girls, sort of huddled up against a unit..It just looked a little strange to me, and then I saw them toss the lock down, roll up the door...I'm sort of just standing there watching...and then they all come out, each one with a box...they just left. Didn't even close the door or anything which seemed really weird to me so I called the police."

Prosecuting Attorney: "About how far away from them were you?"

James Mitchell: "I don't know, maybe like 40 feet or so."

Prosecuting Attorney: "Were you able to describe the people to the police when they arrived?"

James Mitchell: "Yes, I provided descriptions of all four of them."

Prosecuting Attorney: "Concerning this defendant, Mark Staley, what was the description you provided for him?"

James Mitchell: "I described him as being male, early 20s, short hair, with glasses."

Prosecuting Attorney: "Did you see a lineup at any point?"

James Mitchell: "Yes, the officer had me come down to the station the next day. He had me look at a lineup and also asked me to draw a map of the area and note on it where I was, the position of the buildings, and where I saw the people, etc."

Prosecuting Attorney: "Is this the map you drew?" (provides map for Mitchell to see)

James Mitchell: "Yes"

Prosecuting Attorney: "Your honor I would like to introduce Exhibit A, the map that Mr. Mitchell drew."

Judge: "Accepted and received."

Prosecuting Attorney: "Is this the lineup you viewed." (provides lineup for Mitchell to see)

James Mitchell: "Yes."

Prosecuting Attorney: "Your honor I would like to introduce the lineup as Exhibit B."

Judge: "Accepted and received."

Prosecuting Attorney: "Who did you choose in this lineup?" (hands lineup to Mitchell, and he points to someone). "Let the record reflect that Mr. Mitchell identified the defendant Mark Staley, in position 4."

Prosecuting Attorney: "Is the person you identified in the lineup present in this courtroom?" (Mitchell points to the defendant). "Let the record reflect that the witness identified the defendant, Mr. Staley."

Prosecuting Attorney: "Thank you. No more questions"

Judge: "Do you have any questions for this witness?" (directed to Defense Attorney)

Defense Attorney: "Yes your honor. Thank you Mr. Mitchell. Just a couple of questions. About how far away did you say you were?"

James Mitchell: "About 40 feet or so" Defense Attorney: "So pretty far away?"

James Mitchell: "I don't know, I feel like I got a good look."

Defense Attorney: "Okay, well your description of the perpetrators were pretty vague don't you think? For the defendant you said male, with glasses, mid 20s, short hair, is that correct?"

James Mitchell: "Yes, that was my description, but I also told the officer that I thought I could identify them if I saw pictures."

Defense Attorney: "Okay, thank you, no further questions." Judge: "Anything further?"

(to Prosecuting Attorney)

Prosecuting Attorney: "Not for this witness, no."

Judge: "Ok, call your next witness."

Prosecuting Attorney: "The state calls Officer Stephen Grant" (Officer Grant is seated, and sworn in). "Sir, could you state your name for the record"

Stephen Grant: "My name is Stephen Grant, G-R-A-N-T."

Prosecuting Attorney: "Officer Grant, can you please tell us what your position is with the police department and how long you have been employed there"

Stephen Grant: "Sure, I'm a police officer with the Waterloo Police Department. I've been on the force for 9 years."

Prosecuting Attorney: "Okay, thank you. I just want to confirm that this is the lineup that you put together and administered to Mr. Mitchell." (shows lineup)

Stephen Grant: "Yes, it is"

Prosecuting Attorney: "And is this the map that Mr. Mitchell produced when you asked him to draw the scene?" (shows map)

Stephen Grant: "Yes"

Prosecuting Attorney: "Thank you, no further questions at this time your honor."

Judge: "Any questions for you?" (to Defense Attorney)

Defense Attorney: "Yes. Okay Mr. Grant, did you find fingerprints or other forensic evidence at the scene?"

Stephen Grant: "No we did not."

Defense Attorney: "So you cannot link Mr. Staley directly to the crime scene, is that correct?"

Stephen Grant: "Yes, except for Mr. Mitchell's identification"

Defense Attorney: "But to be clear, there was no physical evidence linking my client to the crime scene, is that correct?"

Stephen Grant: "Yes"

Defense Attorney: “No further questions”

Judge: “Any more witnesses?” (to Prosecuting Attorney)

Prosecuting Attorney: “The Prosecution calls Dr. Allen Whitfield” (Whitfield proceeds to witness chair, is seated and sworn in). “Dr. Whitfield, could you please tell us your name and a little bit about yourself?”

Allen Whitfield: “Certainly. My name is Allen Whitfield, A-L-L-E-N, W-H-I-T-F-I-E-L-D. I am professor of Psychology and Law at the University of Nebraska-Lincoln. I teach undergraduate and graduate courses in psychology and law, and conduct research in the area of cognition and the law.”

Prosecuting Attorney: “Can you describe for the court your research?”

Allen Whitfield: “Sure. Most of my research is focused on people’s mental representations of physical spaces. So for example if you think of your home, and if I ask you to count the number of windows, most people bring up an image of their home in their mind, and actually walk through the home mentally to count the windows. From a cognitive perspective, we find this interesting in terms of how people conceptualize spaces.”

Prosecuting Attorney: “Have you ever done any research on how people conceptualize physical spaces like crime scenes?”

Allen Whitfield: “Yes. Part of our work is on how people think about and remember crime scenes. I’m not talking about gruesome crime scenes like you might see in the movies, but rather, the locations of objects, people, and buildings where a crime scene occurred.”

Prosecuting Attorney: “Are witnesses sometimes asked to draw a map or sketch the scene where they saw a crime?”

Allen Whitfield: “Our experience is yes, that sometimes police will ask witnesses to draw a sketch map of what they saw.”

Prosecuting Attorney: “What kind of conclusions have you drawn from this line of research?”

Allen Whitfield: “We have found that the better the quality of the sketch map in terms of detail, general aesthetics, and ease of understanding, that the more likely the witness will also make an accurate lineup identification.”

Prosecuting Attorney: "Would you say that this map is of high or low quality?" (hands Whitfield Exhibit A)

Allen Whitfield: "I'd say this is a high-quality map, which according to our research, means the witness is more likely to perform better when identifying a suspect in a lineup."

Prosecuting Attorney: "Thank you, no further questions."

Judge: "Do you have any questions for this witness?" (to Defense Attorney)

Defense Attorney: "Is it true that a statistical relationship does not always prove one thing caused another?"

Allen Whitfield: "Yes, that is true."

Defense Attorney: "So just because we have a high-quality map here, it does not necessarily mean the eyewitness who drew it would perform well when identifying the suspect?"

Allen Whitfield: "This is true, but the data supports the idea that a witness who draws a higher quality map is better at lineup identifications."

Allen Whitfield: "No, not always."

Defense Attorney: "Thank you, I have no further questions."

APPENDIX G: HIGH QUALITY MAP*EXPERT REFUTES RELATIONSHIP

Excerpt of Court Proceedings

Prosecuting Attorney: "Could you please state your name for the record?"

James Mitchell: "James Mitchell, M-I-T-C-H-E-L-L"

Prosecuting Attorney: "Could you tell us what you were doing on July 29th, 2012 around 2pm?"

James Mitchell: "I was walking on the sidewalk next to Bagwell Storage Units. I happened to look over and saw four people, two guys and two girls, sort of huddled up against a unit..It just looked a little strange to me, and then I saw them toss the lock down, roll up the door...I'm sort of just standing there watching...and then they all come out, each one with a box...they just left. Didn't even close the door or anything which seemed really weird to me so I called the police."

Prosecuting Attorney: "About how far away from them were you?"

James Mitchell: "I don't know, maybe like 40 feet or so."

Prosecuting Attorney: "Were you able to describe the people to the police when they arrived?"

James Mitchell: "Yes, I provided descriptions of all four of them."

Prosecuting Attorney: "Concerning this defendant, Mark Staley, what was the description you provided for him?"

James Mitchell: "I described him as being male, early 20s, short hair, with glasses."

Prosecuting Attorney: "Did you see a lineup at any point?"

James Mitchell: "Yes, the officer had me come down to the station the next day. He had me look at a lineup and also asked me to draw a map of the area and note on it where I was, the position of the buildings, and where I saw the people, etc"

Prosecuting Attorney: "Is this the map you drew?" (provides map for Mitchell to see)

James Mitchell: "Yes"

Prosecuting Attorney: "Your honor I would like to introduce Exhibit A, the map that Mr. Mitchell drew."

Judge: "Accepted and received."

Prosecuting Attorney: "Is this the lineup you viewed." (provides lineup for Mitchell to see)

James Mitchell: "Yes."

Prosecuting Attorney: "Your honor I would like to introduce the lineup as Exhibit B."

Judge: "Accepted and received."

Prosecuting Attorney: "Who did you choose in this lineup?" (hands lineup to Mitchell, and he points to someone). "Let the record reflect that Mr. Mitchell identified the defendant Mark Staley, in position 4."

Prosecuting Attorney: "Is the person you identified in the lineup present in this courtroom?" (Mitchell points to the defendant). "Let the record reflect that the witness identified the defendant, Mr. Staley."

Judge: "Do you have any questions for this witness?" (directed to Defense Attorney)

Defense Attorney: "Yes your honor. Thank you Mr. Mitchell. Just a couple of questions. About how far away did you say you were?"

James Mitchell: "About 40 feet or so"

Defense Attorney: "So pretty far away."

James Mitchell: "I don't know, I feel like I got a good look."

Defense Attorney: "Okay, well your description of the perpetrators were pretty vague don't you think? For the defendant you said male, with glasses, mid 20s, short hair, is that correct?"

James Mitchell: "Yes, that was my description, but I also told the officer that I thought I could identify them if I saw pictures."

Defense Attorney: "Okay, thank you, no further questions."

Judge: "Anything further?" (to Prosecuting Attorney)

Prosecuting Attorney: "Not for this witness, no."

Judge: "Ok, call your next witness."

Prosecuting Attorney: "The state calls Officer Stephen Grant" (Officer Grant is seated, and sworn in). "Sir, could you state your name for the record"

Stephen Grant: "My name is Stephen Grant, G-R-A-N-T."

Prosecuting Attorney: "Officer Grant, can you please tell us what your position is with the police department and how long you have been employed there"

Stephen Grant: "Sure, I'm a police officer with the Waterloo Police Department. I've been on the force for 9 years."

Prosecuting Attorney: "Okay, thank you. I just want to confirm that this is the lineup that you put together and administered to Mr. Mitchell." (shows lineup)

Stephen Grant: "Yes, it is"

Prosecuting Attorney: "And is this the map that Mr. Mitchell produced when you asked him to draw the scene" (shows map)

Stephen Grant: "Yes"

Prosecuting Attorney: "Thank you, no further questions at this time your honor"

Judge: "Any questions for you? (to Defense Attorney)"

Defense Attorney: "Yes. Okay Mr. Grant, did you find fingerprints or other forensic evidence at the scene?"

Stephen Grant: "No we did not"

Defense Attorney: "So you cannot link Mr. Staley directly to the crime scene, is that correct?"

Stephen Grant: "Yes, except for Mr. Mitchell's identification"

Defense Attorney: "But to be clear, there was no physical evidence linking my client to the crime scene, is that correct?"

Stephen Grant: "Yes"

Defense Attorney: “No further questions”

Judge: “Any more witnesses?” (to Prosecuting Attorney) Prosecuting Attorney: “No, I’m done”

Judge: (to Defense Attorney) “Your first witness”

Defense Attorney: “The Defense calls Dr. Allen Whitfield.” (Whitfield proceeds to witness chair, is seated and sworn in). “Dr. Whitfield, could you please tell us your name and a little bit about yourself?”

Allen Whitfield: “Certainly. My name is Allen Whitfield, A-L-L-E-N, W-H-I-T-F-I-E-L-D. I am professor of Psychology and Law at the University of Nebraska-Lincoln. I teach undergraduate and graduate courses in psychology and law, and conduct research in the area of cognition and the law.”

Defense Attorney: “Can you describe for the court your research?”

Allen Whitfield: “Sure. Most of my research is focused on people’s mental representations of physical spaces. So for example if you think of your home, and if I ask you to count the number of windows, most people bring up an image of their home in their mind, and actually walk through the home mentally to count the windows. From a cognitive perspective, we find this interesting in terms of how people conceptualize spaces.”

Defense Attorney: “Have you ever done any research on how people conceptualize physical spaces like crime scenes?”

Allen Whitfield: “Yes. Part of our work is on how people think about and remember crime scenes. I’m not talking about gruesome crime scenes like you might see in the movies, but rather, the locations of objects, people, and buildings where a crime scene occurred.”

Defense Attorney: “Are witnesses sometimes asked to draw a map or sketch the scene where they saw a crime?”

Allen Whitfield: “Our experience is yes, that sometimes police will ask witnesses to draw a sketch map of what they saw.”

Defense Attorney: “What kind of conclusions have you drawn from this line of research?”

Allen Whitfield: “We have found that there is no relationship between the quality of the sketch map (based on detail, general aesthetics, and ease of understanding), and accuracy the sketcher’s lineup identification.

Defense Attorney: “Would you say that this map is of high or low quality?” (hands Whitfield Exhibit A)

Allen Whitfield: “I’d say this is a high-quality map.”

Defense Attorney: “But just because we have a high-quality map here, it does not necessarily mean the eyewitness who drew it would perform well when identifying the suspect in a lineup?”

Allen Whitfield: “This is true, the data supports the idea that the quality of map does not have any bearing on their lineup identification performance.”

Defense Attorney: “Thank you, no further questions”

Judge: “Do you have any questions for this witness?” (to Prosecuting Attorney)

Prosecuting Attorney: “Could you imagine that a person who drew a high-quality map also got a good look at the crime scene?”

Allen Whitfield: “Yes, I could imagine that.”

Prosecuting Attorney: “So just because there is no statistical relationship between high-quality maps and higher lineup identification accuracy in your research, it doesn’t mean that a person who sketched a high-quality map is worse at lineup identifications, correct?”

Allen Whitfield: This is true, I am just saying the data does not show any statistical relationship between the two.

Prosecuting Attorney: Thank you, I have no further questions.

APPENDIX H: LOW QUALITY MAP*EXPERT SUPPORTS RELATIONSHIP

Excerpt of Court Proceedings

Prosecuting Attorney: "Could you please state your name for the record?"

James Mitchell: "James Mitchell, M-I-T-C-H-E-L-L"

Prosecuting Attorney: "Could you tell us what you were doing on July 29th, 2012 around 2pm?"

James Mitchell: "I was walking on the sidewalk next to Bagwell Storage Units. I happened to look over and saw four people, two guys and two girls, sort of huddled up against a unit..It just looked a little strange to me, and then I saw them toss the lock down, roll up the door...I'm sort of just standing there watching...and then they all come out, each one with a box...they just left. Didn't even close the door or anything which seemed really weird to me so I called the police."

Prosecuting Attorney: "About how far away from them were you?" James Mitchell: "I don't know, maybe like 40 feet or so."

Prosecuting Attorney: "Were you able to describe the people to the police when they arrived?" James Mitchell: "Yes, I provided descriptions of all four of them."

Prosecuting Attorney: "Concerning this defendant, Mark Staley, what was the description you provided for him?"

James Mitchell: "I described him as being male, early 20s, short hair, with glasses."

Prosecuting Attorney: "Did you see a lineup at any point?"

James Mitchell: "Yes, the officer had me come down to the station the next day. He had me look at a lineup and also asked me to draw a map of the area."

Prosecuting Attorney: "Is this the map you drew?" (provides map for Mitchell to see)

James Mitchell: "Yes"

Prosecuting Attorney: "Your honor I would like to introduce Exhibit A, the map that Mr. Mitchell drew."

Judge: "Accepted and received."

Prosecuting Attorney: "Is this the lineup you viewed." (provides lineup for Mitchell to see)

James Mitchell: "Yes."

Prosecuting Attorney: "Your honor I would like to introduce the lineup as Exhibit B."

Judge: "Accepted and received"

Prosecuting Attorney: "Who did you choose in this lineup?" (hands lineup to Mitchell, and he points to someone). "Let the record reflect that Mr. Mitchell identified the defendant Mark Staley, in position 4.

Prosecuting Attorney: "Is the person you identified in the lineup present in this courtroom? (Mitchell points to the defendant). Let the record reflect that the witness identified the defendant, Mr. Staley."

Judge: "Do you have any questions for this witness?" (directed to Defense Attorney)

Defense Attorney: "Yes your honor. Thank you Mr. Mitchell. Just a couple of questions. About how far away did you say you were?"

James Mitchell: "About 40 feet or so" Defense Attorney: "So pretty far away."

James Mitchell: "I don't know, I feel like I got a good look."

Defense Attorney: "Okay, well your description of the perpetrators were pretty vague don't you think? For the defendant you said male, with glasses, mid 20s, short hair, is that correct?"

James Mitchell: "Yes, that was my description, but I also told the officer that I thought I could identify them if I saw pictures."

Defense Attorney: "Okay, thank you, no further questions." Judge: "Anything further?"

(to Prosecuting Attorney) Prosecuting Attorney: "Not for this witness, no."

Judge: "Ok, call your next witness."

Prosecuting Attorney: "The state calls Officer Stephen Grant" (Officer Grant is seated, and sworn in). "Sir, could you state your name for the record"

Stephen Grant: My name is Stephen Grant, G-R-A-N-T.

Prosecuting Attorney: "Officer Grant, can you please tell us what your position is with the police department and how long you have been employed there"

Stephen Grant: "Sure, I'm a police officer with the Waterloo Police Department. I've been on the force for 9 years."

Prosecuting Attorney: "Okay, thank you. I just want to confirm that this is the lineup that you put together and administered to Mr. Mitchell." (shows lineup)

Stephen Grant: "Yes, it is"

Prosecuting Attorney: "And is this the map that Mr. Mitchell produced when you asked him to draw the scene?" (shows map)

Stephen Grant: "Yes"

Prosecuting Attorney: "Thank you, no further questions at this time your honor" Judge:

"Any questions for you?" (to Defense Attorney)

Defense Attorney: "Yes. Okay Mr. Grant, did you find fingerprints or other forensic evidence at the scene?"

Stephen Grant: "No we did not"

Defense Attorney: "So you cannot link Mr. Staley directly to the crime scene, is that correct?" Stephen Grant: "Yes, except for Mr. Mitchell's identification."

Defense Attorney: "But to be clear, there was no physical evidence linking my client to the crime scene, is that correct?"

Stephen Grant: "Yes."

Defense Attorney: "No further questions."

Judge: "Any more witnesses?" (to Defense Attorney)

Defense Attorney: "The Defense calls Dr. Allen Whitfield." (Whitfield proceeds to witness chair, is seated and sworn in). "Dr. Whitfield, could you please tell us your name and a little bit about yourself?"

Allen Whitfield: "Certainly. My name is Allen Whitfield, A-L-L-E-N, W-H-I-T-F-I-E-L-D. I am professor of Psychology and Law at the University of Nebraska-Lincoln. I teach undergraduate and graduate courses in psychology and law, and conduct research in the area of cognition and the law."

Defense Attorney: "Can you describe for the court your research?"

Allen Whitfield: "Sure. Most of my research is focused on people's mental representations of physical spaces. So for example if you think of your home, and if I ask you to count the number of windows, most people bring up an image of their home in their mind, and actually walk through the home mentally to count the windows. From a cognitive perspective, we find this interesting in terms of how people conceptualize spaces."

Defense Attorney: "Have you ever done any research on how people conceptualize physical spaces like crime scenes?"

Allen Whitfield: "Yes. Part of our work is on how people think about and remember crime scenes. I'm not talking about gruesome crime scenes like you might see in the movies, but rather, the locations of objects, people, and buildings where a crime scene occurred."

Defense Attorney: "Are witnesses sometimes asked to draw a map or sketch the scene where they saw a crime?"

Allen Whitfield: "Our experience is yes, that sometimes police will ask witnesses to draw a sketch map of what they saw."

Defense Attorney: "What kind of conclusions have you drawn from this line of research?"

Allen Whitfield: "We have found that the better the quality of the sketch map in terms of detail, general aesthetics, and ease of understanding, that the more likely the witness will also make an accurate lineup identification."

Defense Attorney: "Would you say that this map is of high or low quality?" (hands Whitfield Exhibit A)

Allen Whitfield: "I'd say this is a low-quality map."

Defense Attorney: "And to reiterate, your research states that a low-quality map is associated with a low ability in accurate lineup identifications?"

Allen Whitfield: "This is correct."

Judge: "Do you have any questions for this witness?" (to Prosecuting Attorney)

Prosecuting Attorney: "Is it true that an overall relationship does not always prove one thing caused another?"

Allen Whitfield: "Yes, that is true."

Prosecuting Attorney: "So just because we have a low-quality map here, it does not necessarily mean the eyewitness who drew it would perform poorly when identifying the suspect out of a lineup? It often does, but it does not mean this is the case in every instance, correct?"

Allen Whitfield: "This is true, but the data supports the idea that a witness who draws a lower quality map is worse at lineup identifications."

Prosecuting Attorney: "But, not always?"

Allen Whitfield: "No, not always."

Prosecuting Attorney: "Thank you, I have no further questions."

APPENDIX I: LOW QUALITY MAP*EXPERT REFUTES RELATIONSHIP

Excerpt of Court Proceedings

Prosecuting Attorney: "Could you please state your name for the record?"

James Mitchell: "James Mitchell, M-I-T-C-H-E-L-L"

Prosecuting Attorney: "Could you tell us what you were doing on July 29th, 2012 around 2pm?"

James Mitchell: "I was walking on the sidewalk next to Bagwell Storage Units. I happened to look over and saw four people, two guys and two girls, sort of huddled up against a unit..It just looked a little strange to me, and then I saw them toss the lock down, roll up the door...I'm sort of just standing there watching...and then they all come out, each one with a box...they just left. Didn't even close the door or anything which seemed really weird to me so I called the police."

Prosecuting Attorney: "About how far away from them were you?"

James Mitchell: "I don't know, maybe like 40 feet or so."

Prosecuting Attorney: "Were you able to describe the people to the police when they arrived?"

James Mitchell: "Yes, I provided descriptions of all four of them."

Prosecuting Attorney: "Concerning this defendant, Mark Staley, what was the description you provided for him?"

James Mitchell: "I described him as being male, early 20s, short hair, with glasses."

Prosecuting Attorney: "Did you see a lineup at any point?"

James Mitchell: "Yes, the officer had me come down to the station the next day. He had me look at a lineup and also asked me to draw a map of the area."

Prosecuting Attorney: "Is this the map you drew?" (provides map for Mitchell to see)

James Mitchell: "Yes"

Prosecuting Attorney: "Your honor I would like to introduce Exhibit A, the map that Mr. Mitchell drew."

Judge: "Accepted and received."

Prosecuting Attorney: "Is this the lineup you viewed." (provides lineup for Mitchell to see)

James Mitchell: "Yes."

Prosecuting Attorney: "Your honor I would like to introduce the lineup as Exhibit B."

Judge: "Accepted and received"

Prosecuting Attorney: "Who did you choose in this lineup?" (hands lineup to Mitchell, and he points to someone). "Let the record reflect that Mr. Mitchell identified the defendant Mark Staley, in position 4."

Prosecuting Attorney: "Is the person you identified in the lineup present in this courtroom? (Mitchell points to the defendant). Let the record reflect that the witness identified the defendant, Mr. Staley."

Judge: "Do you have any questions for this witness?" (directed to Defense Attorney)

Defense Attorney: "Yes your honor. Thank you Mr. Mitchell. Just a couple of questions. About how far away did you say you were?"

James Mitchell: "About 40 feet or so" Defense Attorney: "So pretty far away."

James Mitchell: "I don't know, I feel like I got a good look."

Defense Attorney: "Okay, well your description of the perpetrators were pretty vague don't you think? For the defendant you said male, with glasses, mid 20s, short hair, is that correct?"

James Mitchell: "Yes, that was my description, but I also told the officer that I thought I could identify them if I saw pictures."

Defense Attorney: "Okay, thank you, no further questions."

Judge: "Anything further?" (to Prosecuting Attorney)

Prosecuting Attorney: "Not for this witness, no."

Judge: "Ok, call your next witness."

Prosecuting Attorney: "The state calls Officer Stephen Grant" (Officer Grant is seated, and sworn in). "Sir, could you state your name for the record"

Stephen Grant: My name is Stephen Grant, G-R-A-N-T.

Prosecuting Attorney: "Officer Grant, can you please tell us what your position is with the police department and how long you have been employed there"

Stephen Grant: "Sure, I'm a police officer with the Waterloo Police Department. I've been on the force for 9 years."

Prosecuting Attorney: "Okay, thank you. I just want to confirm that this is the lineup that you put together and administered to Mr. Mitchell." (shows lineup)

Stephen Grant: "Yes, it is"

Prosecuting Attorney: "And is this the map that Mr. Mitchell produced when you asked him to draw the scene?" (shows map)

Stephen Grant: "Yes"

Prosecuting Attorney: "Thank you, no further questions at this time your honor"

Judge: "Any questions for you?" (to Defense Attorney)

Defense Attorney: "Yes. Okay Mr. Grant, did you find fingerprints or other forensic evidence at the scene?"

Stephen Grant: "No we did not"

Defense Attorney: "So you cannot link Mr. Staley directly to the crime scene, is that correct?"

Stephen Grant: "Yes, except for Mr. Mitchell's identification."

Defense Attorney: "But to be clear, there was no physical evidence linking my client to the crime scene, is that correct?"

Stephen Grant: "Yes."

Defense Attorney: "No further questions."

Judge: "Any more witnesses?" (to Defense Attorney)

Defense Attorney: "The Defense calls Dr. Allen Whitfield." (Whitfield proceeds to witness chair, is seated and sworn in). "Dr. Whitfield, could you please tell us your name and a little bit about yourself?"

Allen Whitfield: "Certainly. My name is Allen Whitfield, A-L-L-E-N, W-H-I-T-F-I-E-L-D. I am professor of Psychology and Law at the University of Nebraska-Lincoln. I teach undergraduate and graduate courses in psychology and law, and conduct research in the area of cognition and the law."

Defense Attorney: "Can you describe for the court your research?"

Allen Whitfield: "Sure. Most of my research is focused on people's mental representations of physical spaces. So for example if you think of your home, and if I ask you to count the number of windows, most people bring up an image of their home in their mind, and actually walk through the home mentally to count the windows. From a cognitive perspective, we find this interesting in terms of how people conceptualize spaces."

Defense Attorney: "Have you ever done any research on how people conceptualize physical spaces like crime scenes?"

Allen Whitfield: "Yes. Part of our work is on how people think about and remember crime scenes. I'm not talking about gruesome crime scenes like you might see in the movies, but rather, the locations of objects, people, and buildings where a crime scene occurred."

Defense Attorney: "Are witnesses sometimes asked to draw a map or sketch the scene where they saw a crime?"

Allen Whitfield: "Our experience is yes, that sometimes police will ask witnesses to draw a sketch map of what they saw."

Defense Attorney: "What kind of conclusions have you drawn from this line of research?"

Allen Whitfield: "We have found that the better the quality of the sketch map in terms of detail, general aesthetics, and ease of understanding, that the more likely the witness will also make an accurate lineup identification."

Defense Attorney: "Would you say that this map is of high or low quality?" (hands Whitfield Exhibit A)

Allen Whitfield: "I'd say this is a low-quality map."

Defense Attorney: "And to reiterate, your research states that a low-quality map is associated with a low ability in accurate lineup identifications?"

Allen Whitfield: "This is correct."

Judge: "Do you have any questions for this witness?" (to Prosecuting Attorney)

Prosecuting Attorney: "Is it true that an overall relationship does not always prove one thing caused another?"

Allen Whitfield: "Yes, that is true."

Prosecuting Attorney: "So just because we have a low-quality map here, it does not necessarily mean the eyewitness who drew it would perform poorly when identifying the suspect out of a lineup? It often does, but it does not mean this is the case in every instance, correct?"

Allen Whitfield: "This is true, but the data supports the idea that a witness who draws a lower quality map is worse at lineup identifications."

APPENDIX J: BOTH MAP CONDITIONS*NO EXPERT

Excerpt of Court Proceedings

Prosecuting Attorney: "Could you please state your name for the record?"

James Mitchell: "James Mitchell, M-I-T-C-H-E-L-L"

Prosecuting Attorney: "Could you tell us what you were doing on July 29th, 2012 around 2pm?"

James Mitchell: "I was walking on the sidewalk next to Bagwell Storage Units. I happened to look over and saw four people, two guys and two girls, sort of huddled up against a unit. It just looked a little strange to me, and then I saw them toss the lock down, roll up the door...I'm sort of just standing there watching...and then they all come out, each one with a box...they just left. Didn't even close the door or anything which seemed really weird to me so I called the police."

Prosecuting Attorney: "About how far away from them were you?"

James Mitchell: "I don't know, maybe like 40 feet or so."

Prosecuting Attorney: "Were you able to describe the people to the police when they arrived?"

James Mitchell: "Yes, I provided descriptions of all four of them."

Prosecuting Attorney: "Concerning this defendant, Mark Staley, what was the description you provided for him?"

James Mitchell: "I described him as being male, early 20s, short hair, with glasses."

Prosecuting Attorney: "Did you see a lineup at any point?"

James Mitchell: "Yes, the officer had me come down to the station the next day. He had me look at a lineup and also asked me to draw a map of the area and note on it where I was, the position of the buildings, and where I saw the people, etc."

Prosecuting Attorney: "Is this the map you drew?" (provides map for Mitchell to see)

James Mitchell: "Yes."

Prosecuting Attorney: "Your honor I would like to introduce Exhibit A, the map that Mr. Mitchell drew."

Judge: "Accepted and received."

Prosecuting Attorney: "Is this the lineup you viewed." (provides lineup for Mitchell to see) James Mitchell: "Yes."

Prosecuting Attorney: "Your honor I would like to introduce the lineup as Exhibit B."

Judge: "Accepted and received."

Prosecuting Attorney: "Who did you choose in this lineup?" (hands lineup to Mitchell, and he points to someone). "Let the record reflect that Mr. Mitchell identified the defendant Mark Staley, in position 4."

Prosecuting Attorney: "Is the person you identified in the lineup present in this courtroom? (Mitchell points to the defendant). Let the record reflect that the witness identified the defendant, Mr. Staley."

Judge: "Do you have any questions for this witness?" (directed to Defense Attorney)

Defense Attorney: "Yes your honor. Thank you Mr. Mitchell. Just a couple of questions. About how far away did you say you were?"

James Mitchell: "About 40 feet or so."

Defense Attorney: "So pretty far away."

James Mitchell: "I don't know, I feel like I got a good look."

Defense Attorney: "Okay, well your description of the perpetrators were pretty vague don't you think? For the defendant you said male, with glasses, mid 20s, short hair, is that correct?"

James Mitchell: "Yes, that was my description, but I also told the officer that I thought I could identify them if I saw pictures."

Defense Attorney: "Okay, thank you, no further questions."

Judge: "Anything further?" (to Prosecuting Attorney)

Prosecuting Attorney: "Not for this witness, no."

Judge: "Ok, call your next witness."

Prosecuting Attorney: "The state calls Officer Stephen Grant" (Officer Grant is seated, and sworn in). "Sir, could you state your name for the record?"

Stephen Grant: "My name is Stephen Grant, G-R-A-N-T."

Prosecuting Attorney: "Officer Grant, can you please tell us what your position is with the police department and how long you have been employed there?"

Stephen Grant: "Sure, I'm a police officer with the Waterloo Police Department. I've been on the force for 9 years."

Prosecuting Attorney: "Okay, thank you. I just want to confirm that this is the lineup that you put together and administered to Mr. Mitchell." (shows lineup)

Stephen Grant: "Yes, it is."

Prosecuting Attorney: "And is this the map that Mr. Mitchell produced when you asked him to draw the scene?" (shows map)

Stephen Grant: "Yes."

Prosecuting Attorney: "Thank you, no further questions at this time your honor."

Judge: "Any questions for you? (to Defense Attorney)"

Defense Attorney: "Yes. Okay Mr. Grant, did you find fingerprints or other forensic evidence at the scene?"

Stephen Grant: "No we did not."

Defense Attorney: "So you cannot link Mr. Staley directly to the crime scene, is that correct?"

Stephen Grant: "Yes, except for Mr. Mitchell's identification."

Defense Attorney: "But to be clear, there was no physical evidence linking my client to the crime scene, is that correct?"

Stephen Grant: "Yes."

Defense Attorney: "No further questions."

Judge: “Any more witnesses?” (to Prosecuting Attorney)

Prosecuting Attorney: “No, I’m done.”

APPENDIX K: JUDGE'S INSTRUCTIONS

Judge's Instructions

It is your duty as jurors to consider the evidence before with complete impartiality and to render your verdict without bias, prejudice or sympathy as to any party. Your verdict must be based on the evidence or lack of evidence. All parties are entitled to equal consideration. The defendant comes before you with the presumption of innocence. The burden is on the State in this case to prove each of the elements of the crime beyond a reasonable doubt, based on credible evidence and reasonable inferences drawn from credible evidence. You may use your logic or common sense, but you may not go into the realm of conjecture or speculation. What is beyond reasonable doubt? A reasonable doubt is a doubt based upon reason and common sense. A reasonable doubt is doubt that a reasonable person has after carefully considering all of the evidence. Proof beyond a reasonable doubt is not proof beyond all doubt or a shadow of a doubt. Rather, it is proof of a sufficiently convincing character that a reasonable person would hesitate to rely and act upon it in the most important affairs of his or her life.

Now, I would like to define for you the elements of the crime with which the defendants have been charged. The State has charged the defendants with **third degree burglary and second degree theft**. You will be asked to render a verdict on each of those charges for the defendant.

Iowa law defines burglary as entering an "occupied structure" that isn't open to the public without permission and with the intent of committing a felony, assault or theft. If it's a normally public place but you enter when it's closed, it's burglary. And if you stay in such a place after it closes--say, by hiding in a fitting room at a store--it's also burglary. What other states may call "breaking and entering" is burglary under Iowa law. An "occupied structure," as defined by the law, is any building used for any purpose, a working motor vehicle or a storage facility large enough that a person could enter it. In this sense, occupied means simply that it belongs to someone. There does not have to be another person present for something to be considered occupied.

The Iowa Code recognizes three degrees of burglary. First-degree burglary can occur only if another person is present, such as the owner of the home being burglarized. It's first-degree burglary if the burglar has a weapon, explosive, incendiary device or flammable material; or if he inflicts bodily injury on someone, including sexual assault.

Second-degree burglary occurs when the burglar has a weapon but there is no other person present, or if there is another person present but the burglar has no weapon and does not inflict any bodily harm. All other instances of burglary, such as entering a building without a weapon and with no one else there, are considered third-degree burglary.

The Iowa Code recognizes five degrees of theft. First-degree theft occurs with the theft of property exceeding ten thousand dollars in value, or the theft of property from the person of another, or from a building which has been destroyed or left unoccupied because of physical disaster, riot, bombing, or the proximity of battle, or the theft of property which has been removed from a building because of a physical disaster, riot, bombing, or the proximity of battle. Second-degree theft occurs when the theft of property exceeding one thousand dollars but not exceeding ten thousand dollars in value or theft of a motor vehicle as defined not exceeding ten thousand dollars in value. Third-degree theft is the theft of property exceeding five hundred dollars but not exceeding one thousand dollars in value, or the theft of any property not exceeding five hundred dollars in value by one who has before been twice convicted of theft, is theft in the third degree. Fourth-degree theft occurs when the theft of property exceeding two hundred dollars in value but not exceeding five hundred dollars in value. Fifth-degree theft occurs when the theft of property not exceeding two hundred dollars in value.

You have heard testimony from persons described as experts. Persons who have become experts in a field because of their education and experience may give their opinion on matters in that field and the reasons for their opinion.

Consider expert testimony just like any other testimony. You may accept it or reject it. You may give it as much weight as you think it deserves, considering the witness' education and experience, the reasons given for the opinion, and all the other evidence in the case.

In this case, the defendant has decided not to testify. The defendant is not required to testify, and no inference of guilt shall be drawn from that fact. The burden of proof remains upon the State to prove the guilt of the defendant.

The purpose of the court's instructions is to provide you with the applicable law so that you may arrive at a just and lawful verdict. Whether some instructions apply will depend upon what you find to be the facts. Disregard any instruction that applies to facts determined by you not to exist. Do not conclude that because an instruction has been given that the court is expressing any opinion as to the facts of this case.

APPENDIX L: LINEUP IDENTIFICATION

| | | | |
|---|---|--|--|
|  1 |  2 |  3 |  |
|  4 |  5 |  6 | |

[Handwritten signature over mugshot 4]

EXHIBIT
B

APPENDIX M: ITEMIZED REPORT OF LOSSES

Itemized report of losses (estimated total of \$2800)

- 2 Microsoft Xbox 360s
- 1 Sony flat screen, HD television
- 1 Paper shredder
- Miscellaneous office supplies
- 2 Apple iPads

APPENDIX N: VERDICT QUESTIONNAIRE (EXPERT)

Verdict Sheet**State of Iowa v Staley**Burglary in the 3rd degree _____ Not Guilty _____ GuiltyTheft in the 2nd degree _____ Not Guilty _____ Guilty

How confident are you in your verdict?

0 1 2 3 4 5 6 7 8 9 10

Not at all confident

Very confident

List any/all information that you considered when coming to your verdict:

What information do you believe was most influential to your decision?

How credible did you perceive Mr. Mitchell to be as a witness?

1 2 3 4 5 6 7

Not at all credible

Very credible

List any/all information that you considered when arriving at your perception of Mr. Mitchell's credibility:

How influential did you find the sketch map in rendering your verdict?

1 2 3 4 5 6 7

Not at all influential

Very influential

How influential did you find the expert testimony in rendering your verdict?

1 2 3 4 5 6 7

Not at all influential

Very influential

How influential did you find the Mr. Mitchell's lineup identification information in rendering your verdict?

1 2 3 4 5 6 7

Not at all influential

Very influential

How influential did you find the defense's argument that there was no physical evidence linking the defendant to the crime scene in rendering your verdict?

1 2 3 4 5 6 7

Not at all influential

Very influential

How influential did you find the expert witness' testimony?

1 2 3 4 5 6 7

Not at all influential

Very influential

To what degree did the amount of detail in the map influence your perception of Mr. Mitchell's credibility?

1 2 3 4 5 6 7

Not at all influential

Very influential

To what degree did the amount of notes and labels in the map influence your perception of Mr. Mitchell's credibility?

1 2 3 4 5 6 7

Not at all influential

Very influential

To what degree did the amount of artistic ability in the map influence your perception of Mr. Mitchell's credibility?

1 2 3 4 5 6 7

Not at all influential

Very influential

To what degree did the size of objects in the map influence your perception of Mr. Mitchell's credibility?

1 2 3 4 5 6 7

Not at all influential

Very influential

What other aspects of the map, if any, affected your overall verdict?

What other aspects of the map, if any, affected your overall perception of Mr. Mitchell as a credible eyewitness?

Rank order (1-least influential 5-most influential) the aspects of the case that influenced your decisions the most:

_____Map Quality

_____Expert Testimony

_____Lack of physical evidence

_____Appearance of the suspect

_____Eyewitness lineup identification

What were the main ideas presented by the expert witness in his testimony?

APPENDIX O: VERDICT QUESTIONNAIRE (NO EXPERT)

Verdict Sheet**State of Iowa v Staley**

Burglary in the 3rd degree _____ Not Guilty _____ Guilty

Theft in the 2nd degree _____ Not Guilty _____ Guilty

How confident are you in your verdict?

0 1 2 3 4 5 6 7 8 9 10

Not at all confident

Very confident

List any/all information that you considered when coming to your verdict:

What information do you believe was most influential to your decision?

How credible did you perceive Mr. Mitchell to be as a witness?

1 2 3 4 5 6 7

Not at all credible

Very credible

List any/all information that you considered when arriving at your perception of Mr. Mitchell's credibility:

How influential did you find the sketch map in rendering your verdict?

1 2 3 4 5 6 7

Not at all influential

Very influential

How influential did you find the Mr. Mitchell's lineup identification information in rendering your verdict?

1 2 3 4 5 6 7

Not at all influential

Very influential

How influential did you find the defense's argument that there was no physical evidence linking the defendant to the crime scene in rendering your verdict?

1 2 3 4 5 6 7

Not at all influential

Very influential

To what degree did the amount of detail in the map influence your perception of Mr. Mitchell's credibility?

1 2 3 4 5 6 7

Not at all influential

Very influential

To what degree did the amount of notes and labels in the map influence your perception of Mr. Mitchell's credibility?

1 2 3 4 5 6 7

Not at all influential

Very influential

To what degree did the amount of artistic ability in the map influence your perception of Mr. Mitchell's credibility?

1 2 3 4 5 6 7

Not at all influential

Very influential

To what degree did the size of objects in the map influence your perception of Mr. Mitchell's credibility?

1 2 3 4 5 6 7

Not at all influential

Very influential

What other aspects of the map, if any, affected your overall verdict?

What other aspects of the map, if any, affected your overall perception of Mr. Mitchell as a credible eyewitness?

Rank order (1-least influential 4-most influential) the aspects of the case that influenced your decisions the most:

_____Map Quality

_____Lack of physical evidence

_____Appearance of the suspect

_____Eyewitness lineup identification

APPENDIX P: WORD FIND

50 European Countries

Find the 50 countries in Europe



ALBANIA
ANDORRA
ARMENIA
AUSTRIA
AZERBAIJAN
BELARUS
BELGIUM
BOSNIA HERZEGOVINA
BULGARIA
CROATIA
CYPRUS
CZECHIA
DENMARK
ESTONIA
FINLAND
FRANCE
GEORGIA

GERMANY
GREECE
HUNGARY
ICELAND
IRELAND
ITALY
KAZAKHSTAN
LATVIA
LIECHTENSTEIN
LITHUANIA
LUXEMBOURG
MACEDONIA
MALTA
MOLDOVA
MONACO
MONTENEGRO
NETHERLANDS

NORWAY
POLAND
PORTUGAL
ROMANIA
RUSSIA
SAN MARINO
SERBIA
SLOVAKIA
SLOVENIA
SPAIN
SWEDEN
SWITZERLAND
TURKEY
UKRAINE
UNITED KINGDOM
VATICAN CITY